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Original Articles.

LESIONS OF THE CONUS MEDULLARIS AND CAUDA EQUINA.

A CONTRIBUTION TO THE STUDY OF SPINAL LOCALIZATION

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It is only within the past few years that lesions of the conus medullaris and cauda equina have attracted the attention of medical writers. In 1895 Raymond collected 29 cases of spinal disease, in which either one or the other of these structures were involved. Since then Clemens, Schiff, Church, Koster, Mueller, Sachs and a few others have reported similar conditions. The symptoms produced by disease of the conus medullaris and cauda equina are well defined and, as a rule, easy of recognition. Experience shows, however, that unless one has learned to search directly for them, they may be readily overlooked. My chief aim in presenting this paper is to further the recognition of the clinical picture indicative of disease of these important structures.

The conus medullaris occupies a position in the spinal canal directly behind the first lumbar vertebra. Upon exposing the spinal cord, the conus is completely hidden from view by a mass of firm and coarse fibers, constituting the beginning of the cauda equina. Anatomically, its upper limit has not been accurately defined. Text-books on anatomy and neurology, if they refer to the conus medullaris at all, usually describe it as that conical portion of the spinal cord below the lumbar enlargement. Clinicians, in describing cases, have pleased their own fancy relative to its boundaries. Thus, Braütigam places its upper limit at the lower part of the lumbar enlargement. Valentini and others have described, as conus lesions, disease involving the whole sacral cord. Raymond, Müller and others who have written on the subject recently are inclined to limit the conus medullaris to that portion of the cord represented by the third, fourth and fifth sacral and the coccygeal segments. The recent studies of Müller relative to the histology of the lower end of the spinal cord appear to justify such an anatomical limitation.

The clinical picture produced by lesions of the conus medullaris thus anatomically restricted is characterized by well-defined sensory and motor disturbances. Sensation is impaired in an area symmetrically distributed, which involves the integument of the penis, scrotum, perineum, anus, inner aspect of the buttocks and posterior surface of the thighs. The sensibility of the mucous membrane of the penis and rectum may also be dulled. If the lesion is sufficiently destructive, the muscular

power of the bladder and rectum may be seriously impaired, sexual power lost, and bedsores may develop.

Lesions of certain fibers of the cauda equina may produce a clinical picture very similar to that of conus disease. To be able to recognize and differentiate the two conditions is not only scientific, but extremely practical from the standpoint of treatment. While it is not probable that focal lesions of the conus will ever be amenable to surgical treatment, a limited number of cases of caudal disease have already been reported successfully treated by operation. Focal disease of either the cauda equina or conus medullaris may exist alone or in connection with disease elsewhere. Disease of both structures may coexist.

During the last three years it has been my fortune to observe nine cases in which disease of either the conus or the cauda was present, one of which came to autopsy. The lesions represented in these cases included focal myelitis, tumor of the conus and disturbances of function of these structures due to the following conditions: Injury to the vertebral column, tumor of the vertebrae, and tubercular spondylitis. I have also observed one case of tabes dorsalis in which the symptoms of a conus lesion were present.

THE WORK OF STARR AND KOCHER.

That the case may be studied more understandingly I wish before reporting them in detail to refer briefly to the work of Starr and others on spinal localization. Starr was one of the first to recognize the importance of the fact that focal lesions of the different spinal segments were accompanied by sensory disturbances confined to certain areas of the skin. After an extended study of the cases reported, and of his own, both antemortem and postmortem, he elaborated a chart relative to the lower extremities, to which the reader is now referred. According to Starr, disease of the third sacral segment is accompanied by anesthesia of the area marked S3; similarly, disease of other segments gives rise to anesthesia of areas designated by the corresponding segment number. Subsequently, Head constructed a chart based chiefly on his study of herpetic eruptions and areas of cutaneous tenderness present in visceral disease. The gaps in the cutaneous areas not affected by visceral disease, such as that from the second to the fourth lumbar segments, inclusive, were filled in by him from a study of cases, the result of disease or injury. The result of Kocher's work on spinal localization is shown in an accompanying chart representing the lower extremities only. Wichmann's chart for the lower extremities shows marked overlapping of many of the segments. His conclusions are based on a consideration of nerve distribution combined with clinical cases. The dissimilarity in the results obtained shows that either

cutaneous distribution is not constant, or that knowledge on the subject is imperfect. It is hoped that a study of the following cases may contribute something to the subject of spinal localization.

CASE 1.—Illustrating Myelitis or possible Spontaneous Hemorrhage, involving the Conus Medullaris:

J. M., male, aged 40, was admitted to the hospital, Oct. 4, 1898. When 17 years of age, had chancre, followed by secondary lesions. Several years ago used alcohol to excess. Claims that he drinks moderately of late. Two days previous to admission, while drunk, patient was exposed to cold and wet and slept all night in his wet clothing. The next day patient suffered with headache, nausea and weakness of legs. He was able to work all day. That night he slept well; next morning went to work as usual and continued until noon. About 1 p. m., after returning from dinner, the patient sat down and upon attempting to arise found that he could not, on account of weakness of his legs. He was brought to the hospital and after his arrival walked a short distance. The same evening patient noticed he was unable to retain his urine. No sensation was felt in the bladder or urethra, as it

entered the hospital and says his legs feel stronger. Bladder is distended; the urine dribbles away and bowels move without producing any sensation. No pain has been experienced. Sexual power is lost. Sensory disturbances: Hyperesthesia of scrotum, penis and areas outlined in Fig. 1. In these areas the temperature sense is almost completely lost; a superficial pin-prick does not give the sensation of pain; a deep pin-prick is recognized. Slight anesthesia about the outer side of the left ankle. The process probably extends upwards as high as the lower portion of the first sacral segment. The testicles are tender on pressure. The anal sphincter is relaxed. The urethral mucous membrane is anesthetic to the passage of a sound. There is very little resistance offered by the membranous portion of the urethra.

The patient gradually improved in strength and on October

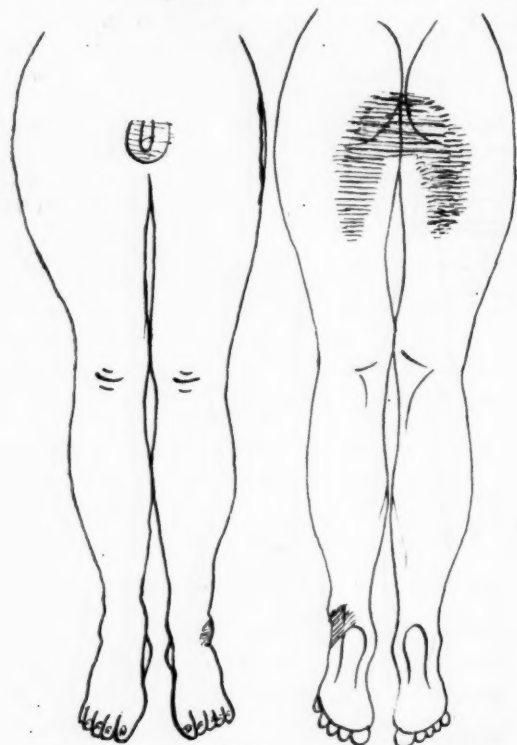


Figure 1.

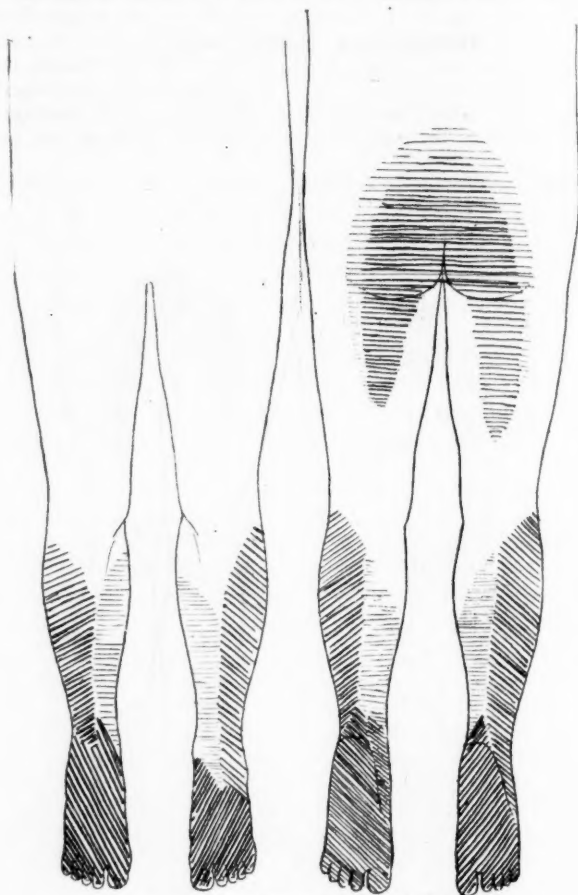


Figure 2.

dribbled away from him. He was then able to control his bowels. Numbness of the skin about the gluteal and anal regions was noted by the patient. Superficial examination disclosed areas of partial anesthesia and analgesia on the posterior aspect of the buttocks and thighs. Sensation elsewhere normal. Patellar reflexes slightly exaggerated. Temperature normal. Bladder palpable two inches above pubes. Gait was very unsteady. No painful sensations experienced by the patient. For two days the bowels did not move. Magnesium sulphate was given and followed by involuntary bowel movements.

Examination on October 11, one week after admission, revealed the following condition: No symptoms referable to the cranial nerves, upper extremities or trunk. The lower extremities are somewhat weakened, especially both peroneal groups of muscles. Patient is able to support his weight on his toes. Extensors and flexors of the right foot slightly weaker than those of the left. Fibrillary twitchings are not observed; no atrophies; normal response to electricity. Patellar reflexes slightly exaggerated, more on the left. Achilles reflex absent, both sides. Both plantar reflexes present, but abdominal and cremaster absent. No incoordination. The gait is slightly spastic—paretic. Patient is able to walk better than when he

21 the bowel movement was controlled. On November 2, it is recorded that the patient can retain urine and can feel it as it is voided. The patient was discharged Dec. 28, 1898. The area of hyperesthesia remained about the same in outline, although not as pronounced as on admission. The patient had gained full control of his bladder and rectum.

Clinical Diagnosis: Myelitis or possibly spontaneous hemorrhage, involving the conus medullaris; influence of lesion at onset extending as high as the fifth lumbar segment. The differential diagnosis between conus and caudal disease will be considered at the close of the article.

According to Sherrington, the skin of a given locality is supplied by a higher root than the muscles lying directly beneath that area, with the exception of the posterior surface of the thigh. Only the pilomotor fibers of the sympathetic ganglion and the sensory cutaneous areas of the corresponding spinal ganglion coincide in their distribution. According to Langley, the secretory fibers of the sympathetic ganglion correspond in a like manner. It may be noted that in this case the statement of Sherrington does not appear to agree with the

findings. Relative to the exact location of the lesion in the cord, it may be safely stated that in the early stage the lesion extended high enough to influence decidedly the fourth and fifth lumbar segments, and possibly slightly higher, since the patellar reflex was exaggerated. Subsequently, the effect of the lesion was confined to the sacral segments. The upper limit of the permanent lesion reached the level of the lower part of the first sacral segment. Whether it extended downward to the tip of the cord may not be stated. The lower limit of cord lesions is always difficult to ascertain, the chief aids being the reaction of degeneration, and the condition of the reflexes.

CASE 2.—Illustrating myelitis or hemorrhage in the conus and adjacent cord: L. S., female, aged 17, was admitted to the hospital, May 24, 1901. Three weeks before admission the patient began to have pain in the small of the back during the regular menstrual period. Did not sleep much that night. The next day felt as well as usual. Three days later she began to have pain in the back and knees. While on an errand, her

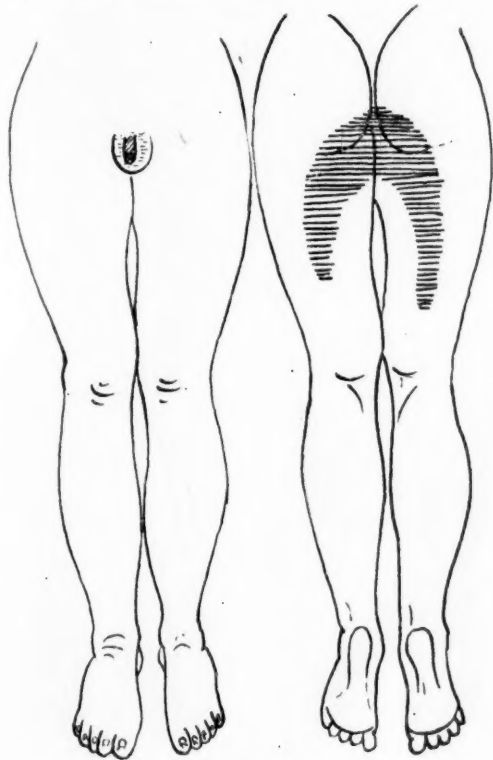


Figure 3.

the foot. Peroneal group totally paralyzed. Outward and inward rotation of the hip is paretic. Unable to voluntarily force the thighs backwards. Levator and sphincter ani relaxed. Detrusor muscle paretic. Mucous membrane of the vagina and rectum slightly dulled to touch and pain sense. Muscle sense absent. Sensation disturbed in the areas outlined in figure 2. There is complete loss of sensation of pain, temperature and touch in the areas outlined about the buttocks and perineum. The same is true of the more deeply shaded areas about the feet and the outer side of the legs. The inner side of the legs was hypesthetic. The loss of the temperature and pain sense was more sharply outlined and extended slightly beyond the areas of cutaneous anesthesia. Areas that showed slight hypesthesia were analgesic to superficial pinprick, and temperature could not be distinguished.

It was necessary to catheterize the patient for several weeks.

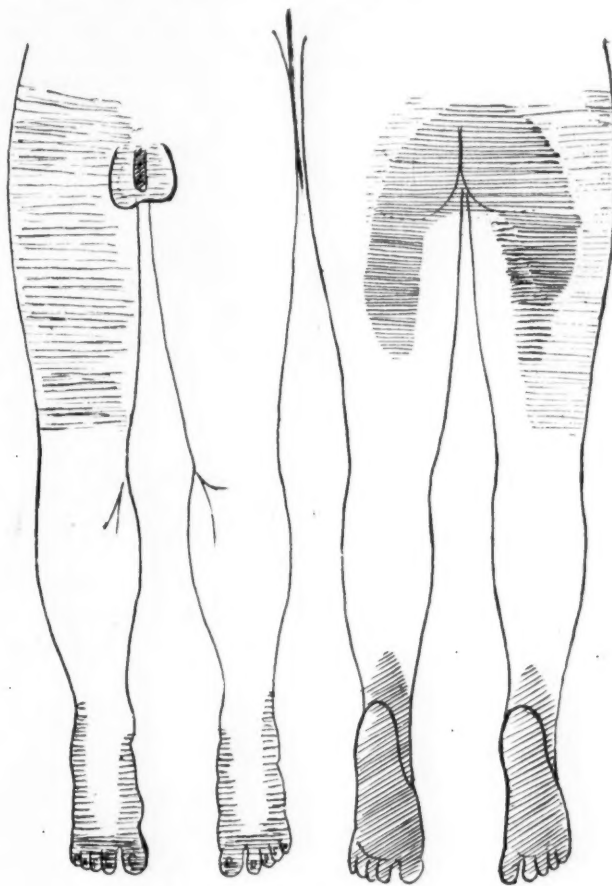


Figure 4.

knees suddenly gave way and she fell to the ground. She was unable to get up and was carried to her bed. Pain was felt in the legs, especially in the calf muscles. The pain was sharp, intense, cramp-like in character and continued for five or six days. Some tenderness of the posterior thigh muscles developed. Patient cried out when the legs were moved. Pain was increased on pressure. One week after onset of paralysis, incontinence of urine developed. Bowels were all right for one week after onset, when constipation began. Bowels were moved by cathartics. These soon failed, and the strongest became futile. Enemas also had little effect. Patient did not feel feces passing the sphincter. No fever, nausea or vomiting was present. Three weeks after onset a large bed sore suddenly developed. Family history negative. Patient had not recently been ill.

Examination May 26 shows no spinal deformity or tenderness. Bedsores in the sacral region the size of the hand. Bladder distended. Some weakness of quadriceps muscles. Legs may be drawn up and flexed on the thigh with considerable exertion. Plantar and dorsal flexion of the feet is impossible. The patient is unable to move the toes or evert either edge of

The pain in the legs had disappeared when the patient came to the hospital. After about two weeks, it reappeared, but not as severe as at the onset. It came in paroxysms, lasting about fifteen minutes, returning about every hour. This continued for about two weeks, and has not since returned. The bed sore has persisted, although it is growing smaller. The condition at last examination, Oct. 21, 1901, was very little changed, except that the bed sore was nearly healed, and the patient was gaining some control over the bladder and rectum.

Since pain in the legs was an important symptom at two different times during the early history of this case, it is not improbable that the cord lesion was accompanied by a slight meningeal affection. A myelitis is often associated with slight meningeal inflammation. Intra- and extra-medullary hemorrhage not infrequently take place at the same time. On the other hand, it is doubtful whether in such cases one is justified in assuming that a meningeal lesion coexists, since irritation of the sensory paths in the cord may be accompanied by

radiating pains and hyperesthesias. (Berndt, Vix, Kocher and Gowers.) In a given case the nature of the process and the severity of the pain would count for much in determining whether the meninges were involved.

CASE 3.—Illustrating Lesion of the Cauda Equina: C. S., male, aged 35, walked to the hospital and was admitted Oct. 22, 1899. The first symptom noted by the patient was pain in the right lower extremity and soon afterward in the left. The pains gradually became more severe, and the patient began to lose in weight. Before his admission to the hospital he had been treated for sciatica. Upon admission to the hospital pain in the thighs and legs was very severe, but not increased on pressure. Power of the lower extremities somewhat impaired. A tumor having its apparent origin in the lower

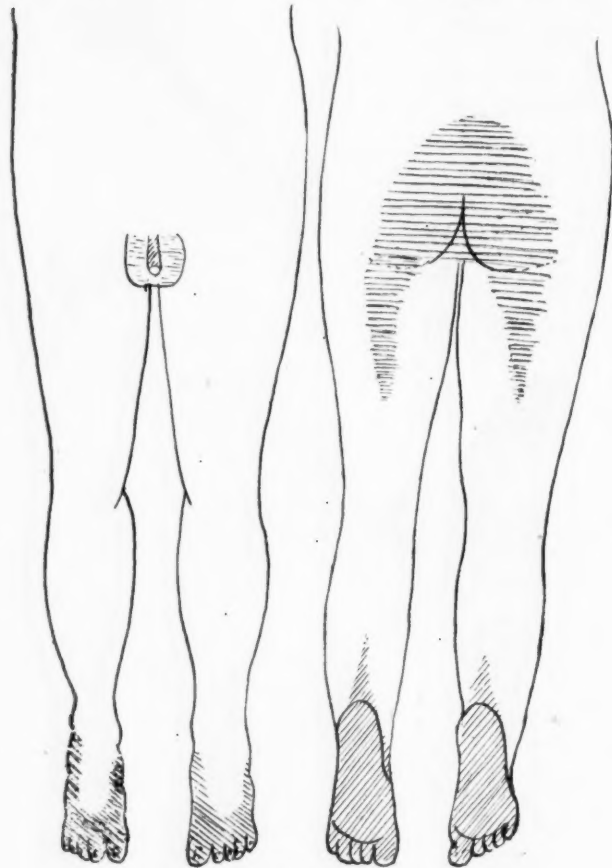


Figure 5.

lumbar spine was readily palpable through the abdominal walls. An area of hypesthesia corresponding to shaded portion of figure 3 was detected. During the following two months the hypesthetic areas became anesthetic, analgesic and thermesthetic. The patient lost control of his bladder and bowels. The anal sphincter became relaxed. The mucous membrane of the penis became anesthetic to the passage of a sound. Notwithstanding these symptoms, the patient could move his legs with considerable freedom. Their movement was restricted apparently by the increased pain produced. The electrical reactions were unchanged. At first the patellar reflex was slightly exaggerated.

At the time the patient was discharged, the reflexes were about normal. The tumor had increased rapidly in size and apparently involved the bodies of the vertebrae in the middle and lower thirds of the lumbar spine. It was probably a sarcoma. Unfortunately, the patient moved from the city, and I am not able to give the subsequent history of the case.

From the location of the tumor the lesion was probably compression of the cauda equina in the lower lumbar region. It will be noted, however,

that the distribution of the anesthesia, and the bladder and rectum disturbances indicate that the fibers coming from the third, fourth and fifth sacral segments, or, in other words, the fibers coming from the conus, were much more seriously affected by the compression than the remaining fibers of the cauda equina. The fibers from the conus hang in the center of the whole bundle of fibers constituting the cauda equina, and there is no apparent reason why they should suffer greater injury from compression than those immediately surrounding them. Thorburn, however, has previously made similar observations relative to compression of the cauda equina. In his book on surgery of the spinal cord, he writes:

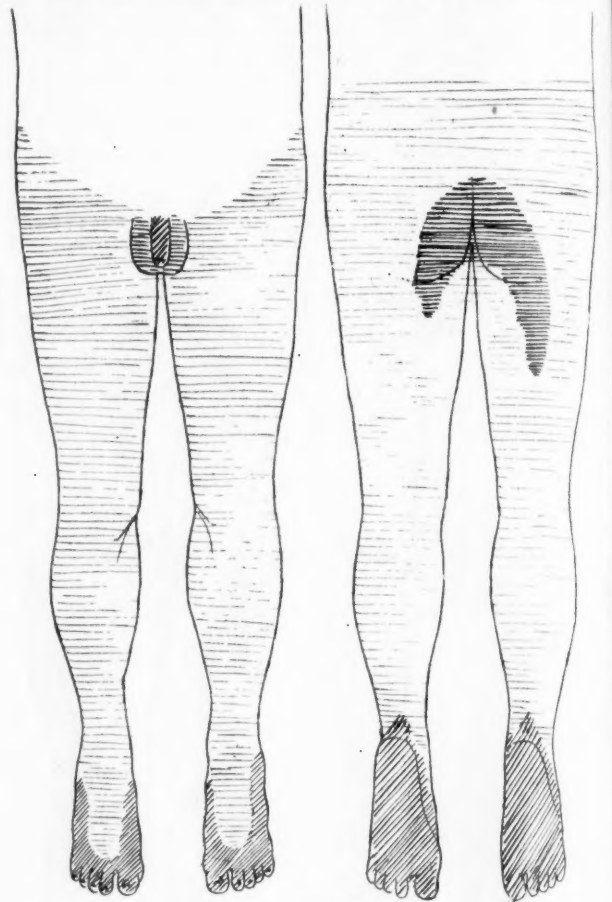


Figure 6.

“In a pressure lesion of the entire cauda equina the central fibers are more seriously injured than those surrounding them.”

CASE 4.—Illustrating traumatic Myelitis of the Conus and adjacent Cord: J. S., male, aged 40, was admitted to the hospital May 21, 1900. Patient fell a distance of ten feet, striking on his shoulders, doubling his spine. He immediately felt numbness in the right lower extremity, and pain in the small of the back. He could move his legs, but could not get up on account of pain in his back. No pain was felt in his lower extremities. No pricking nor tingling sensations were experienced. Before arriving at the hospital the patient noted that the penis and scrotum were anesthetic.

Examination, May 25: Slight angular deformity present at the first lumbar vertebra. Two small blebs on either side of the gluteal fold, about four inches above the anus. Excoriation about the head of the penis. Both lower extremities are weak, but all their movements, including flexion, extension and rotation, can be executed. No atrophies. Reflexes—patellar, Achilles, plantar, cremasteric and abdominal absent. Reflexes of upper extremities normal. Retention of urine exists, and

when the bladder is overfilled the patient experiences dull pain. The passing of a catheter is not felt. The anal sphincter offers slight resistance. The patient is not conscious of the examining finger, except in the region of the prostate. Rectal tube is not felt until the sigmoid flexure is nearly reached. No pain along the course of the nerves. Muscular sense everywhere intact. Sexual power lost. Sensation is disturbed in the areas outlined in figure 4. The areas shaded heavily corresponding to the cutaneous distribution of the second, third fourth and fifth sacral segments were anesthetic to touch and to ordinary pin-prick. A deep thrust of the pin produced the sensation of pressure and slight pain. Temperature sense lost. The areas shaded lightly were uniformly anesthetic to the camel's hair brush. It will be noted that the cutaneous area supplied by the first, second, third, fourth and fifth sacral segments are affected on both sides equally. In addition, on

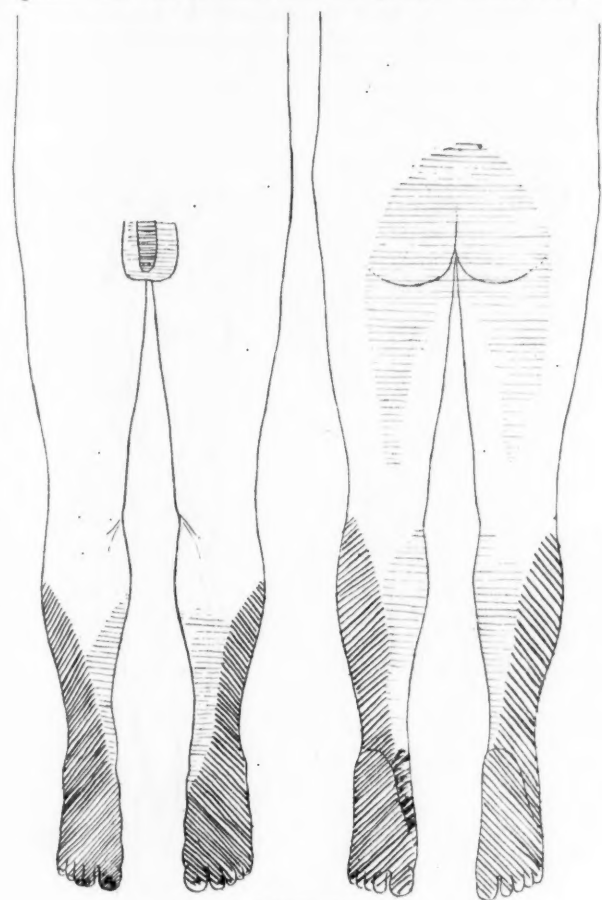


Figure 7.

the right side the cutaneous distribution of the twelfth dorsal, first, second and third lumbar segments are involved. Electrical reaction normal.

Diagnosis: Traumatic myelitis involving the conus medullaris, influence of lesion extending as high as the twelfth dorsal segment. *Etiology:* Dislocation or fracture of the first lumbar vertebra. *Subsequent course:* Patient was seen last Oct. 21, 1901. He was able to walk and do some work. Areas of anesthesia confined to the distribution of the sacral segments. He had regained control of the bladder and rectum.

Since the fibers of origin of the cauda equina completely surround the conus medullaris, one might expect more serious symptoms referable to the cauda in a traumatic lesion of the conus, such as we assume exists in this case. Relative to this point, however, Oppenheim, Schultz, and Sarbo have each reported a case, with autopsy, in which the conus was destroyed by trauma, and the fibers of the cauda remained intact. When one compares the relatively delicate structure of the conus with the coarse fibers of the cauda that surround it, it

is easy to understand how a sudden and temporary displacement of the bodies of the vertebræ from fracture or dislocation might seriously injure the conus and produce few or no symptoms referable to the cauda equina. That simple compression of both of these structures may result in disturbing the function of the conus without affecting the fibers of the cauda equina is well illustrated by the following case of tubercular spondylitis:

CASE 5.—Illustrating uniform Compression of the Conus from Spondylitis: J. O'M. came to Dr. Preble's clinic, complaining of pain in his back. Examination showed slight deformity and tenderness in the region of the first lumbar vertebra. There was little or no loss of power in his legs. There was a sharply defined area of hypesthesia corresponding to the shaded outline in figure 5. It will be noted that there was dulled sensibility in the cutaneous area supplied by the whole sacral cord. The function of the bladder and rectum was undisturbed. The sexual power was intact. No painful sensations were experienced, with the exception of tenderness at the

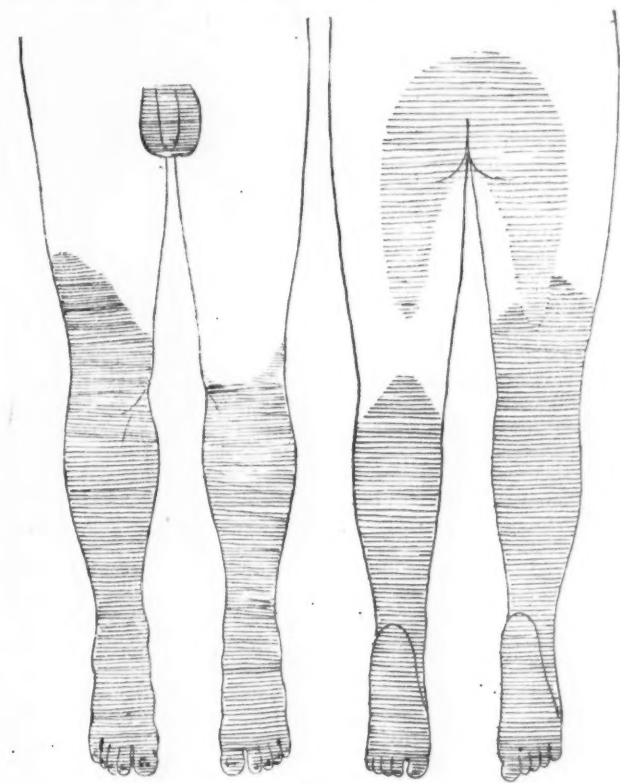


Figure 8.

seat of the spondylitis. The patient gradually improved, so that he is now able to work. The deformity in the lumbar region has nearly disappeared. No trace of the cutaneous anesthesia is to be found. It is fair to presume that the hypesthesia was due to compression of the conus by the inflammatory exudate of the spondylitis, and that as the exudate was absorbed, the conus hypesthesia disappeared.

CASE 6.—Illustrating traumatic Myelitis or possibly Hemorrhage involving the Conus and adjacent Cord: R. received an injury to his dorso-lumbar spine, resulting in sudden paralysis of the legs, bladder and rectum three years ago. The patient is now able to work and has regained control of his bladder and rectum. Fig. 6 represents the sensory disturbances still present as the result of the injury. The lighter shades are intended to indicate hypesthesia, the darker shades anesthesia to a camel's hair brush. Pain sense was dulled and temperature sense lost in the area of darker shade. It will be noted that the sensory disturbances indicate that the lesion which now remains is symmetrical, and involves the cord as high as the twelfth dorsal segment. The function of the whole sacral cord, as shown by the cutaneous anesthesia, is more

seriously disturbed than that of the adjacent portion of the spinal cord.

CASE 7.—Illustrating Contusion of the Spinal Cord with possible Hemorrhage into its Substance: J. K., aged 44. On June 19, 1897, patient fell from a bridge, 23 feet high, striking on his buttocks. He was not rendered unconscious, but could not arise on account of weakness in his legs. He experienced pain in his back, but none in his legs or thighs. A feeling of numbness was present in his legs, and he was unable to move them. It was necessary to catheterize him. His bowels did not move without an enema. No pain was felt when the catheter was passed. In four months the patient was able to walk with the aid of crutches. During the last two years there has been no improvement in muscular power. He can control the bowels, but can not retain urine more than one hour. Sexual power is lost. Pain was not experienced at any time, except that felt in back immediately following injury.

Examination, Oct. 20, 1901, revealed the following: No

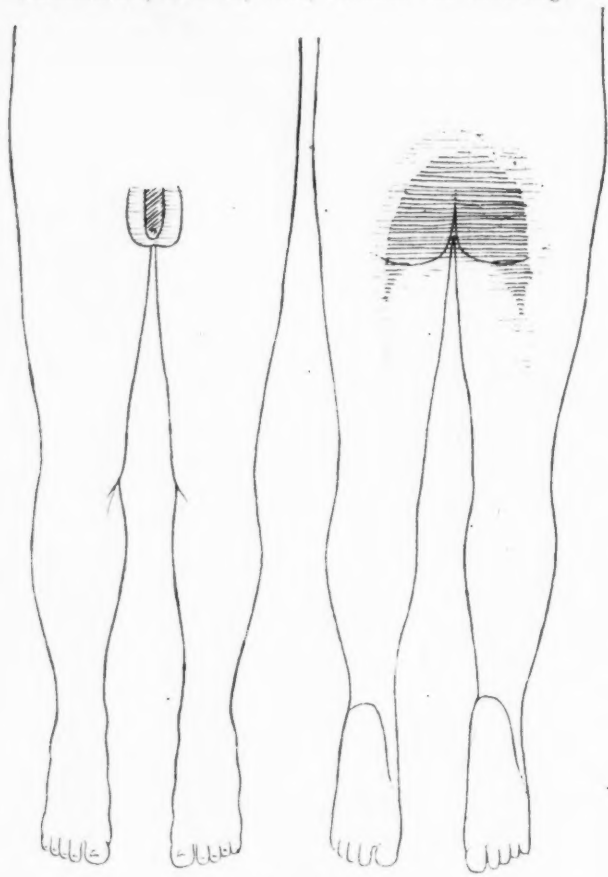


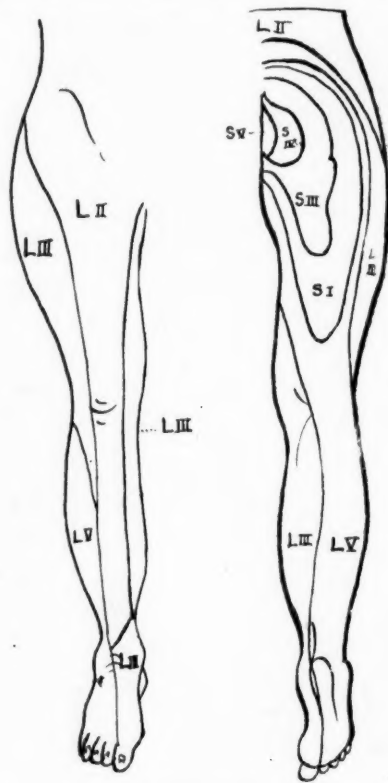
Figure 9.

spinal deformity; patient walks with the aid of a cane; gait paretic and slightly spastic. Toes were flexed upon the foot in the hammer-toe position; tendency to footdrop. Feet and legs were slightly swollen, but no edema. No individual atrophy present, although the peroneal group appeared somewhat flabby. The patient was unable to move his toes or flex his foot upon the leg. The power of extension somewhat impaired. Was able to bend both knees and rotate both legs. Abduction and flexion of hip normal. Quadriceps and abductors possessed fair degree of power. Anal sphincter was intact. Perineal muscles responded to volition. Patellar reflexes were normal. Ankle clonus marked. Plantar reflex normal. Muscular sense in toes entirely lost. Sensation disturbed, as shown in Fig. 7.

CASE 8.—Illustrating Tumor of the Conus and adjacent Cord: W. T., aged 19, was admitted to the hospital June 14, 1898. One year previous, tubercular glands had been removed from the neck. Three weeks before the patient was admitted, he had some difficulty in walking. Examination of lungs negative. Apex of the heart in the mammary line. No murmurs. Abdomen negative. Abdominal reflex normal. Arms negative;

legs, area of imperfect tactile, thermic and pathic sensation can be found on the right leg, but can not be exactly outlined. Small area of anesthesia found on the outer side of the right knee. Patellar reflex can not be obtained on either side. Other reflexes appear normal. Romberg's symptom well marked. The patient complained of pain in the thighs and legs. The case was looked upon as a probable peripheral neuritis, and the patient was about the ward, apparently comfortable, for several weeks, when he showed signs of rapid decline. Pulmonary râles developed, and evidence of slight fluid appeared in the peritoneal cavity. The temperature was elevated.

Examination of the nervous system, August 27, one day previous to death, revealed the following condition: Marked hypesthesia of shaded areas (Fig. 8) of the whole penis and scrotum. Mucous membrane of the penis hypesthetic. Perineum, hypesthetic; likewise shaded portion of the gluteal region. In these localities a moderate pin-prick was imperfectly felt. Camel's hair brush was not noticed. Deep pin-prick produced dull pain. Partial thermesthesia existed in these areas. The center of the shaded part of the thigh was totally anesthetic; its border hypesthetic. Anesthesia was profound to the sense



Starr's chart.

of touch, pain and temperature in the shaded areas of both legs, extending slightly above the knees, as outlined in the figure. Here and there a deep pin-prick was felt by the patient. No tenderness on pressure; muscles of the leg soft and flabby; no individual atrophy. Motor power of feet and toes lost. Right patellar reflex absent. Left gave very slight response. Ankle clonus present on both sides. Small blebs containing serous hemorrhagic fluid on the plantar surface of the left foot. A bleb the size of a silver dollar was present on the dorsum of the same foot. Patient complained of pain in the thighs, which was not increased on pressure. Was not able to move the feet, but could draw the knees up slightly. Not able to control the bowel movements, if he waited long after desire to stool was felt. Normal feeling when bowels moved. Control of bladder same as rectum. Sexual power lost since short time after entering hospital. Sensation in other parts of the body normal. A careful test of the movements of the thigh muscles was not made, on account of the patient's condition. The patient died on the following day, before further examination was possible.

The diagnosis made as to disease of the nervous system was progressive lesion of the conus medullaris and adjacent cord, with probable involvement of the nerve roots. The great pain present, referred to the thighs and legs, could not well be produced by a pure cord lesion, and no pain on pressure being present, nor individual sensory disturbances, a meningeal or root process was probable. The ankle clonus, in association with loss of patellar reflex on one side and diminished patellar reflex on the other side, was very striking. Possibly the lesion destroyed the center for the patellar reflex and irritated the center for the tendo-Achilles reflex, or perhaps the lesion cut off the upper segment control of the tendo-Achilles reflex. It is also to be noted that the sexual power was lost, while the function of the bladder and rectum was fairly well preserved.

Autopsy showed miliary tuberculosis the immediate cause of death. A tubercular tumor was found occupying the upper sacral and lower lumbar cords. The upper limit of the lesion was at the lower part of the second lumbar segment, higher on the right than on the left side.

tion of a given root, it was necessary to divide five roots above and five below the one investigated. Head claims that the areas of distribution mapped out by him on the basis of herpetic eruptions and tenderness in visceral disease do not overlap and that they correspond fairly closely to the areas of Sherrington, determined by a study of posterior root distribution. He also claims that the great difference between the root and the cord supply is that the root supply overlaps greatly, while the cord supply does not. Finally, Head concludes that the mechanism for touch sensation in the spinal cord overlaps, and that the mechanism for pain and temperature and trophic influences does not overlap, or at least not to the same extent as the overlapping of the touch sensation. His conclusions receive support from a study of this series of cases. It was also noted that the pain and temperature areas approximately coincide. Refer-

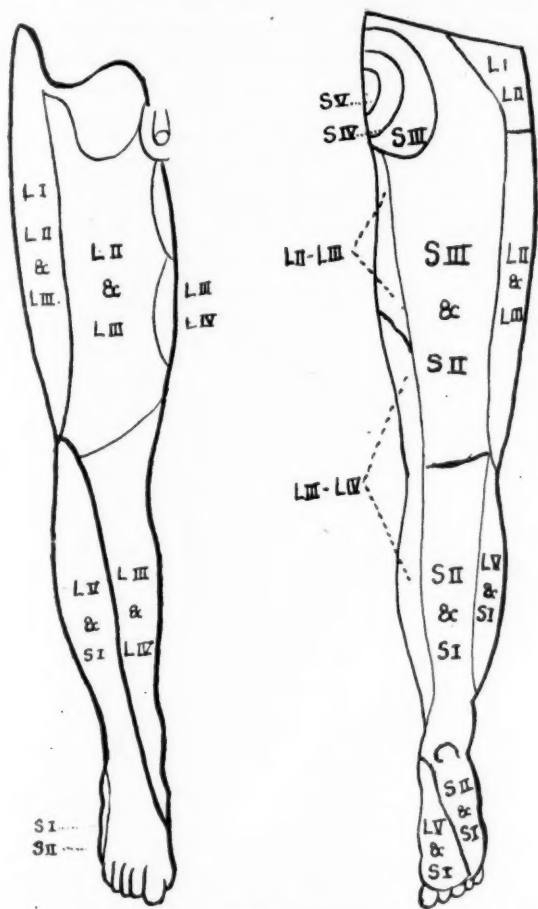
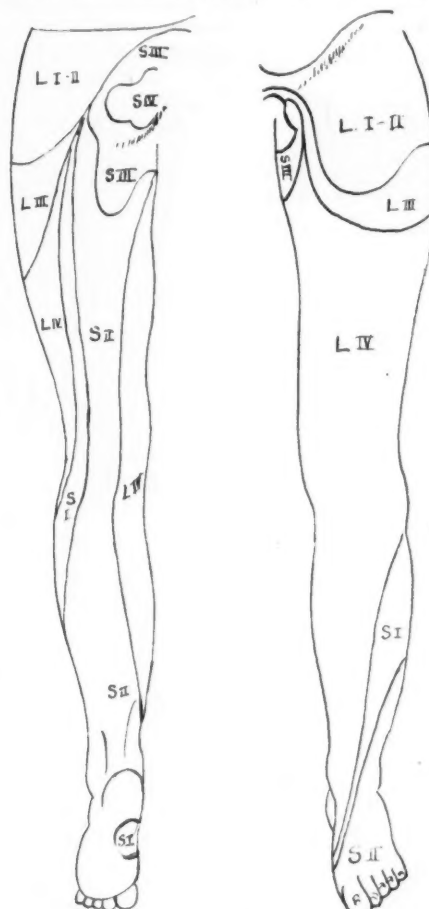


Chart after Wichmann.



Rocher's chart.

Figure 9 represents an area of cutaneous hypesthesia found in a case of tabes dorsalis. This was among the first manifestations of the disease.

In all the cases of this series the disturbance in temperature and pain sense was more sharply defined and, as a rule, extended slightly beyond the areas of cutaneous anesthesia. Areas in which tactile sensibility was only slightly dulled often showed analgesia and thermesthesia. Such observations have been previously made by Starr, Thorburn and others who have given attention to these particulars.

Sherrington's experiments on the posterior spinal roots show a marked overlapping of the cutaneous distribution. Cutting one root was accompanied by no loss in the sensation of touch. Such great overlapping was present that in order to map out the area of distribu-

tion again to the charts of Starr, Head, Koehler and Wichmann, it will be observed that Wichmann's chart shows greater overlapping of areas than any of the others. This would naturally result from the basis upon which the outlines were constructed. The distribution of peripheral nerves was consulted largely and it is known that they overlap to a marked degree. Although these charts differ considerable in detail, they resemble each other coarsely and for clinical purposes any one of them would certainly be approximately correct. Viewed from the standpoint of accurate physiology, they probably do not represent final knowledge on the subject. Indeed, it will not be possible to draw hard and fast lines descriptive of cutaneous areas of spinal segment distribution until a great many cases have been studied in connection with autopsies. I be-

lieve a study of this series of cases contributes certain points relative to the physiology of the sensory distribution of the lower cord.

It will be observed that there is great similarity in the outline of the shading representing the areas of anesthesia about the posterior thighs, buttocks, perineum, penis and scrotum. These areas are fairly symmetrical, and correspond very closely to the areas said by Starr and Kocher to represent the distribution of the third, fourth and fifth sacral segments. Figures 3 and 9 show pure types of conus anesthesia. The area mapped out resembles somewhat the patch on saddle-breeches. Since this peculiar area is repeated in every one of the nine cases and in many others in the literature, it is fair to presume that lesion of a certain portion of the cord or cauda equina is regularly accompanied by such an area of anesthesia. From a study of these cases and those reported, especially the cases collected by Starr and Kocher, I believe the areas outlined in Figures 3 and 9 are due to disease of the third, fourth and fifth sacral

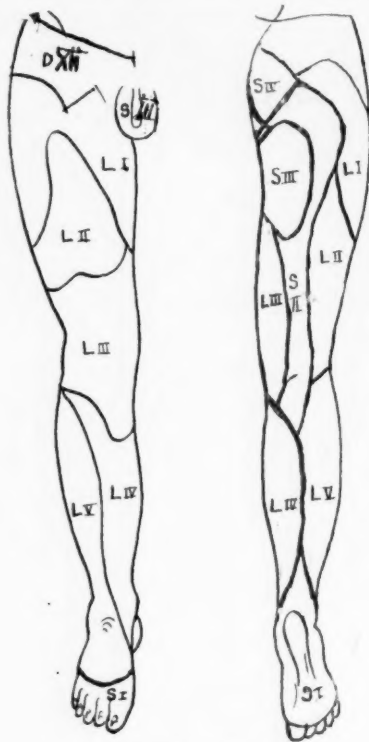
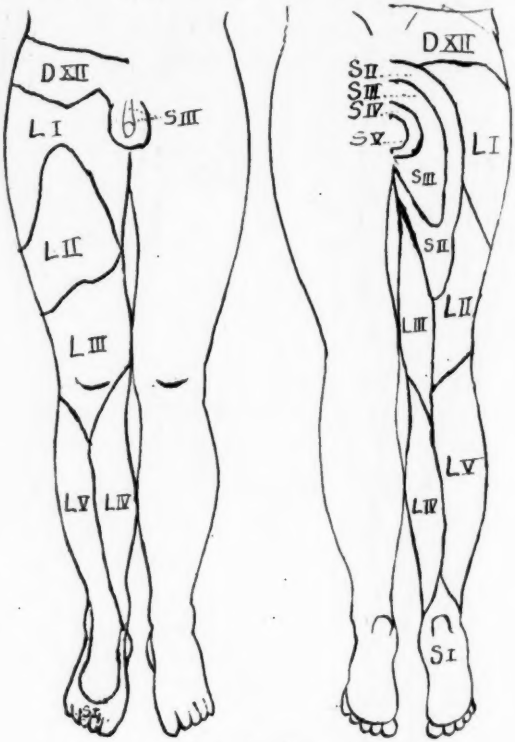


Chart after Head.

segments, or to disturbance in function of caudal fibers leading to those segments. In case the lesion extends higher in the cord, involving the second sacral segment, this same area is extended so as to conform very closely to that outlined by Starr under the first, third, fourth and fifth sacral segments. (Figures 1, 2, 5, 7, 8 and the deeper shades on the buttocks of 4 and 6.) Thus far the outlines in this series agree perfectly with Starr's chart.

I wish now to call attention to the peculiar slipper-shaped area of anesthesia about the feet in figures 4, 5 and 6. By referring to the charts, it will be seen that Head has outlined such an area. Figure 1 shows an area of anesthesia about the left outer ankle, suggesting the beginning of the slipper-shaped area. Head has shown reasons for believing this area to be supplied by the first sacral segment. These cases furnish good evidence in support of the existence of such an area and it seems very probable that the cord segment which sup-

plies it lies directly above that for the saddle-breeches area. According to Head, lesions of the fifth and fourth lumbar segments produce sensory disturbances on the outer and inner sides of the leg respectively. Cases 2 and 7 are completely in accord with such a distribution. It may be noted that the outlines in the nine cases here reported corroborate very closely the work of Starr about the buttocks, perineum, penis, scrotum and posterior thighs, and that of Head about the feet and legs. It is also worthy of note that in connection with the saddle-breeches area the anesthesia of the posterior thighs did not extend downward as far as the bend of the knee, except in Cases 4 and 8. In Case 8 it is probable that disease of the second and third lumbar segments caused the anesthesia of the legs to become continuous with the anesthesia of the thighs. In Case 4, injury to the second and third lumbar segments caused an extension of the anesthesia downwards beyond the bend of the knee. This series of cases confirms splendidly the work of Starr relative to the posterior thighs, and does not at all con-



Author's chart.

form to the charts of Head, Kocher and Wichmann. Head extends a strip downward from the buttocks to some distance below the knee. Kocher and Wichmann extend a continuous strip from the buttocks down the posterior thigh and leg to the feet. These cases show such uniformity in outline that one is compelled to alter somewhat the charts previously constructed relative to the lower extremities. I feel justified in offering a new provisional chart based upon a study of this series of cases in connection with those previously reported. It is to be understood that as new cases are recorded, no doubt still further alterations in the areas outlined will be made.

DIFFERENTIAL DIAGNOSIS BETWEEN LESIONS OF CAUDA EQUINA AND CONUS MEDULLARIS.

When disease of the cauda equina is accompanied by typical symptoms, there may be no difficulty in recognizing it. Except when due to trauma, disease of the

cauda usually develops slowly, producing symptoms more or less characteristic of root disease. The patient first experiences pain upon movement of the lower extremities; later the pain becomes spontaneous and persistent, with exacerbations. Subsequently, anesthesia begins and when the lesion is a uniform compression of the cauda, it has been observed in a few cases that the function of the central fibers was the first disturbed. Bladder and rectum symptoms may appear early and are usually present before anesthesia becomes pronounced. Muscular weakness is present in proportion to the pressure on the motor fibers and, as a rule, does not appear until pain has become a prominent feature. The paralysis is characterized by loss of muscular tone. An early examination may show exaggerated reflexes. Later they are diminished and finally lost. Atrophies develop. The electrical reactions may be altered. Decubitus has been noted. In reference to the height of the caudal lesion, if no local signs relative to the spine are present, to aid in locating the lesion, it is fair to presume that the upper limit of the lesion is just above the exit of the highest nerve that is disturbed in its function.

Disease of the conus is characterized by the sensory and motor symptoms described in the beginning of this article. In addition, the symptoms are likely to develop rapidly. Sensation may not be disturbed alike for all qualities. The pain and temperature sense is likely to be more seriously affected than the touch sense. Provided the conus lesion does not exert an influence on the caudal fibers, severe pain is absent. Decubitus is more likely to occur than in caudal disease. Above all, that which characterizes disease of the cauda equina is pain. A conus lesion may be associated with pain, provided the cauda or meninges are also involved. That which speaks directly for a conus lesion in a given case is the absence of pain. Differential diagnosis of the two conditions is important, as disease of the cauda equina may often be amenable to surgical treatment.

I am very greatly indebted to members of the Attending Staff of Cook County Hospital, who have so kindly placed their cases at my disposal.

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PLASTIC SURGERY, WITH CASES.—FORMATION OF NEW CHEEK.

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 KEOKUK, IOWA.

Plastic surgery principally concerns the repair of skin or mucous membrane defects. Direct approximation of edges, by undermining and stretching, fixed by sutures, is easy and sure of satisfactory results if tension is not too great and the tissue healthy. This method may be aided by lateral subsidiary incisions to facilitate sliding, the lateral clefts being left to granulate and cicatrize, or are closed by grafts placed at once, or as soon as good healthy granulation tissue has formed.

Flap formation, with or without twisting of the pedicle, will in some cases serve a useful purpose. Marginal connection of flaps from a distant part of the body, re-

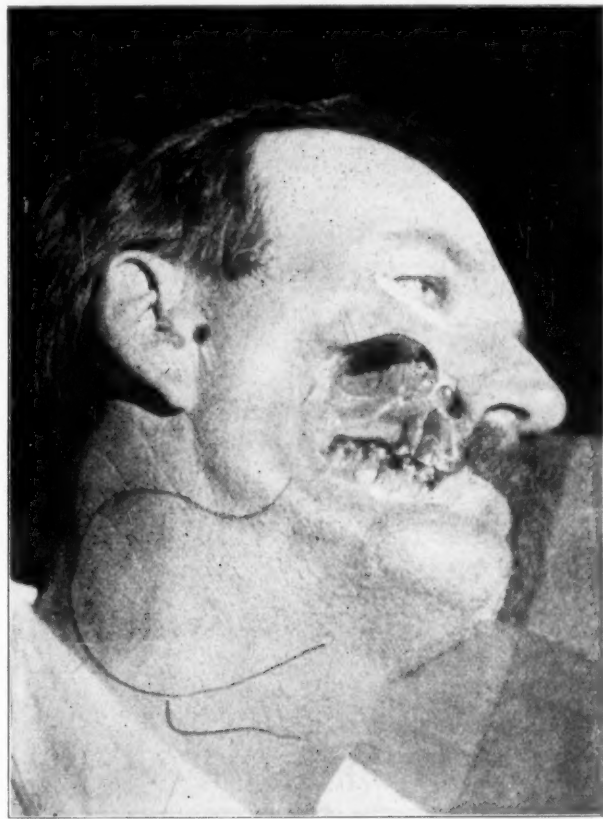


Figure 1.

leased from pedicle connection later, has a very limited field. The confinement is most irksome; besides, the vitality of the disconnected flap is feeble for a long time. In all cases where the new skin can be made to rest upon an underlying, healthy fresh wound, free from blood, or upon a granulating surface throughout, the chances of success are certainly good—especially if even a very moderate blood supply can be obtained for the flap. Where no base exists upon which to rest the flap, where subtegumentary connective tissue, skin and mucous membrane are lost, as in cases of cancerum oris, or the much more common deformity of almost total loss of one side of the face resulting from the use of cancer paste to remove carcinoma, real or imagined, the difficulties are increased a hundredfold.

CASE 1.—Such a case was presented at my clinic in September, 1900, in the person of Mr. R., of McCausland, Iowa, referred by Dr. F. C. Smith. He gave a

history of carcinoma of the lip and cheek twice operated upon; it quickly returned, but was subsequently treated by a so-called cancer specialist, and presented the appearance partly indicated in the photograph which I herewith present as Fig. 1. More than the right half of the upper lip, all of the cheek from the nose to one-third inch from the right eye, to three-fourths inch from the ear, and to the lower portion of the jaw were gone, together with part of the malar bone, and all of the external portion of the right superior maxillary with most of its alveolar process, leaving the entire right side of the mouth and tongue exposed, as well as a considerable opening into the nasal cavity and a recess two inches deep extending back to the posterior internal wall of the maxillary sinus. Saliva constantly discharged from the lowest part of the opening. Strange to say, this enormous gap had cicatrized, all bone was covered, and the surface had every appearance of being healthy. I was informed that it had been in this condition for one year.

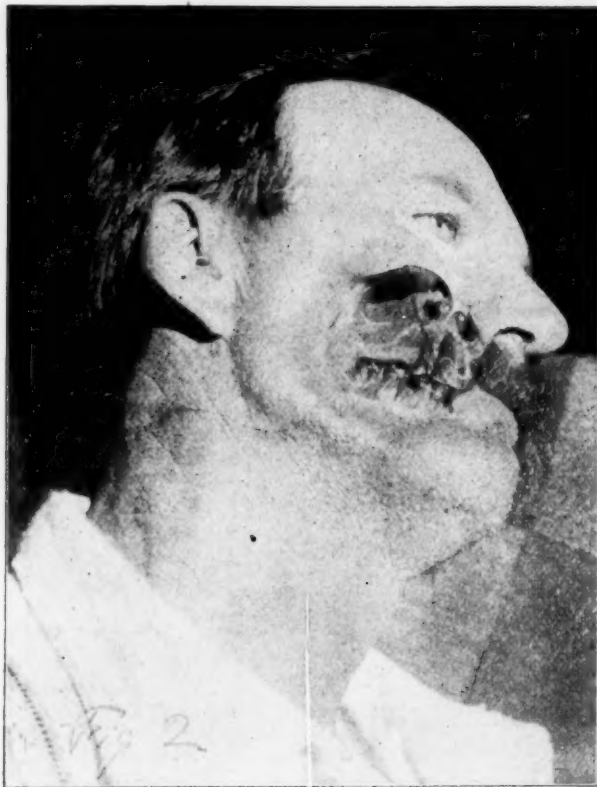


Figure 2.

To close this enormous defect I raised a flap, as indicated in the above cut, No. 1, by the heavy ink lines, and sutured it in position. A small flap from farther down the neck was used to close the front of the defect made by removing the large flap. The other borders were undermined and the flap space narrowed sufficiently that twelve grafts entirely closed the large wound in ten days so as to leave almost no deformity on the neck. I was compelled to disregard the source of blood supply much more than I liked, but raised considerable subcutaneous tissue to increase the number of vessels to the flap. A small portion of the flap sloughed by the side of the nose, and the suture bite was lost under the eye. The portion of the flap which failed to secure connection rapidly contracted and became inverted, and in a few weeks had formed an almost complete epithelial lining on the inner side of the remaining portion of the flap. The amount gained by the first operation is shown

by the heavy ink line on Fig. 2, all being closed practically from below to this line.

The next step consisted in cutting loose the remaining left half of the upper lip from the nose, undermining its attachments far out upon the cheek, and drawing it so far to the right as possible, where it was anchored. The lower lip was then loosened extensively by undermining far down over the chin. It was not possible to unite the old cheek flap to the upper lip as I had hoped. To meet this difficulty, I divided the lower lip vertically and extended the right side upward between the old flap and the end of the upper lip, and with it nicely filled in the space between them and sutured all in position. At the point where I divided the lower lip vertically I was compelled to make the temporary right angle of the mouth, stitching the lip securely in place; the result was all that could be expected, as union was obtained throughout. The mouth was, however, drawn far to the left side by muscular action and was very small. Fig. 3

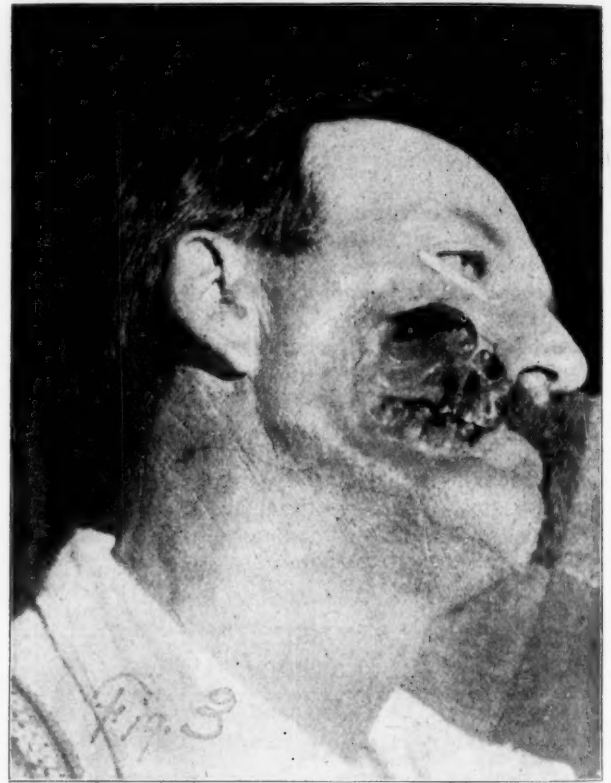


Figure 3.

shows by the ink line the defect at the side of the nose yet to be closed.

Three weeks later the course of the right temporal artery was carefully outlined and a flap raised with the artery running directly through its center. The flap was made large enough to close the remaining space, with one-half to three-fourths of an inch to spare, at all points on the margin. The margins of the gap were then freshened by splitting the integument, and a continuous cut made one-eighth to one-fourth in from the margin and the inner side inverted so that it could be sutured on the inside of the flap margin. The edge of the flap proper was carefully sutured to the skin surface or edge with which it was to be continuous. The bearing contact surface of the flap margin was thus increased at least twice or three times what it ordinarily would have been. The pedicle of the flap was left attached at its base; one week later the integument was

removed from beneath the pedicle and the latter was sutured in position, while a portion of the tissue removed from beneath the pedicle was used to form a new lower

head along the course and on each side of the anterior branch of the temporal artery. The right angle of the mouth was now extended to the margin of the new temporal flap. Fig. 4, taken one week after the last grafting was done, gives a better explanation than words.



Fig. 4.—Appearance two weeks after last operation.



Figure 6.



Fig. 5.—Appearance five months after last operation. Twenty-eight grafts were used to close the defect left by the removal of the flap from the temple and fore-



Fig. 7.—After removal of one-half of tongue, two inches of lower jaw and submaxillary glands, etc.

CASE 2.—Mr. Albert R. was referred to me by the party who used the caustic. A history was furnished of a growth which was supposed to have started from the

right tonsil and was three times operated upon, and lastly was eaten off by my erstwhile friend of the guarantee-cure fame of Dubuque. The result is tolerably well shown in Fig. 6.

The body of the right superior maxilla was almost entirely gone with all of the soft parts over it, part of the upper lip and the lower lip to the lower margin of the inferior maxilla. The inferior maxilla was gone at one point, and surmounting the point of solution of continuity in the inferior maxilla, and involving the right side of the tongue was an epitheliomatous mass more interesting than agreeable to contemplate. With the head very low an incision was made wide of apparent deposit around the outer side of the growth, and an incision was extended from this point downward to the cornua of the thyroid cartilage on the right side. The integument was separated on each side. A needle was then thrust through the center of the tongue, immediately above the hyoid bone, armed with a silk loop; the needle was then carried out on the right side in front of the external



Figure 8.

carotid above the facial and lingual arteries, and a strong iron tinned wire was carried through by the silk loop so as to bring, when tightened, the entire blood supply to the right half of the tongue perfectly under control. The right side of the tongue was now removed with little difficulty and slight loss of blood. About a two-inch piece was removed from the inferior maxilla, together with the submaxillary gland and submaxillary lymph glands. Microscopic examination showed the growth to be an epithelioma, and that nearly all of the tissue removed was involved by malignant infiltration. The large surface left to granulate was carefully watched, and any suspicious points were cauterized with the thermocautery after testing with the arsenic-alcohol solution. This plan was followed until cicatrization was practically complete in about six weeks. Figs. 7 and 8 show condition at this time.

Under chloroform anesthesia the remaining part of the upper lip was severed from the nose and other bonv

attachments far out upon the left cheek, the lower lip and soft parts over the chin were likewise undermined, so as to glide as nearly as possible into the normal positions for such structures, and to reach to the flap to be raised for closing the main defect. The cicatricial tissue which extended to the lower part of the jaw below the angle of the mouth was detached along the tegumentary margin and turned upward, remaining attached to the upper border of what was left of the jaw in front, and was sutured in place as a reinforcement to the new flaps and as an epithelial graft on the inner side of the new cheek. The main flap to fill in the remaining defect was obtained principally from in front of the ear with the pedicle extending down on to the neck. The marginal union was effected as in the former case, by turning in the skin edge all along the margin to act as epithelial grafts on the margin for the inner surface of



Fig. 9.—Two weeks after operation.

the new cheek, as well as to protect the raw contact surface. Union was prompt, complete and perfect, except a very small sinus at the ala nasi. The defect in front of the ear left by removing the flap was narrowed as much as possible at the time of operation, and a week later was grafted from the arm, about twelve grafts being required. Fig. 9 illustrates the condition two weeks after forming the new cheek, and one week after the grafting was done for closing the defect left by the removal of the flap from the cheek. For six days and nights heat was applied to the cheek as near 125 Fahrenheit as possible. I take pleasure in presenting this case now, two and a half months after operation. I prefer to leave the pedicle connected at its base of original attachment as furnishing a much safer blood supply to meet the results of accident and cold than would be possible where marginal nutriment alone was depended upon.

In making skin or mucous membrane grafts to close

defects of skin or mucous membrane, care must be taken to include only the skin or mucous membrane proper without any fat; and usually a piece is transplanted three-sixteenths inch by one-fourth inch and always transferred at once to its final resting-place on a fresh, raw or healthy granulating surface, and after being secured in position is not disturbed for at least three days. Perfect draining opportunities must, however, be provided, and strict aseptic precautions must be maintained throughout. If only the epithelial layer is used as a graft the resulting cicatrix is feeble, and from slight irritation the surface recently closed is likely to lose all the protection the physician was able to procure in weeks of patient toil.

CASE 3.—In March of this year a little girl 7 years of age was referred to me by Dr. Tobin of Mt. Sterling, Iowa, for cicatricial contraction and flexion, to an extreme degree, of the ring and little fingers of the right hand from a burn produced eight months before by a rope being drawn rapidly through the hand. Previous experience had convinced me of the folly of attempting to cure the case while the mass of cicatrix remained. I carefully removed all the scar tissue, at points exposing the flexor sublimus and profundus tendons, until the fingers could be easily and perfectly straightened, except a slight defect at the last joint of the little finger. The entire palmar surface of each finger was denuded. Two pieces of skin were next carefully removed from the forearm of the same limb of sufficient size to nicely cover the defects after allowance was made for shrinkage. The pieces removed were one-third by two and one-half inches. These large pieces or grafts were carefully sutured in place with fine silkworm gut tailings, as I could not trust a child of her age to leave the dressings entirely undisturbed. The hand was kept wrapped in an abundance of cotton and resting for six days and nights on a hot-water bottle at 125 Fahrenheit. Union was complete throughout on the little finger. Slight slough took place in the center of the ring finger flap, but not enough to be serious. The fingers were kept extended by splint for three weeks. The tendency to contraction was very slight indeed when last reported. This is the first case in which I have attempted to transplant bodily so large a piece of skin, and the first in which I know of sutures being used to retain a graft.

The plastic face cases are by far the heaviest and most extensive I have undertaken, and the worst I know to have been closed by any form of plastic procedure.

A NEW DRY SURGICAL DRESSING.

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AND

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PHILADELPHIA.

Whatever interest the manifold substitutes for iodoform may have for the surgeon or dermatologist, they are too similar in chemical construction and attributes to claim the serious attention of the scientific pharmacologist familiar with the laws of the relationship between chemical constitution and physiologic activity; the latter knows that clinically they must be of practically identical worth and have all the same limitations, disadvantages or dangers. Surgeons employ the odoriferous, toxic, non-antiseptic iodoform in the treatment of infected wounds because they know that not one of the

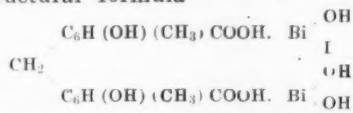
substitutes is of equal value in cleaning the wound of the products of septic and necrotic processes and in stimulating healthy granulation. Aside from the stimulating odor of iodoform, the need of a substitute therefor has received additional emphasis by the fact that within comparatively recent times surgeons everywhere have frequently recorded more or less severe forms of headache, with or without anuria or albuminuria, which were clearly ascribable to the local use of but moderate quantities of iodoform.

Practically all of the iodoform substitutes thus far proposed belong to one or the other of two classes and have, therefore, certain advantages and disadvantages. The first group comprises those which, like iodoform, depend for their activity upon the presence of iodine loosely combined chemically so that free iodine is eliminated by contact with the wound secretions. The best known of these is aristol (dithymol diodid), which is of certain value in a limited number of cases but which is too easily decomposed and too expensive to employ even if it fulfilled the requirements of a satisfactory dressing. Clinically the antiseptic and granulation-stimulating properties of free iodine are desirable, but there are other striking indications for treatment in infected wound surfaces which are not met by these iodine-bearing powders.

To the second group of iodoform substitutes belong the large number of bismuth compounds, depending for their activity upon bismuth which, as is well known, acts as a protective and diminishes secretions. Kocher of Bern employed and recommended bismuth subnitrate as a dressing for wounds attended with pus formation and excessive secretions. Hans Meyer of Marburg showed that the drying effect of bismuth is due to the mechanical plugging of the blood and lymph capillaries by minute particles of bismuth and that, anatomically considered, the effect is analogous to the healing which takes place under a scar. The newer organic bismuth compounds are of value clinically because they diminish wound secretions in the manner above indicated, but are possessed of but feeble, if any, antiseptic power and have no stimulating effect upon granulation; this is true not only of dermatol (subgallate) but also of the host of other bismuth compounds that have been offered under fanciful names.

By application of the newest procedures of synthetic chemistry, the writers have endeavored to produce a substitute for iodoform that would chemically, pharmacologically and clinically, possess the attributes which the teachings of modern surgery assert are necessary to meet the indications for treatment in infected wounds. Such a powder should be antiseptic, astringent, sedative, desiccating, stimulating to granulation and non-toxic. From a chemical standpoint the first step is to combine, synthetically, bodies which will gradually dissociate when brought in contact with wound secretions and thereby unfold their chemical and physiologic effects. We produced a series of compounds, all entirely new definite chemicals, and studied their chemical, pharmacologic and clinical properties. The essential features of one of these compounds, monoiodid-di-bismuth-methylene-dicresotinate produced for the first time by ourselves, are herewith briefly presented. This body is synthesized from cresotinic acid, formaldehyde, bismuth hydroxid and iodine in the following manner: Cresotinic acid, the least toxic and strongest antiseptic of the phenol group, is treated with formaldehyde and the thereby resulting methylene-dicresotinic acid is chemically com-

bined with iodine and bismuth hydroxid. This yields moniodid-di-bismuth-methylene-di-cresotinate which has the structural formula



This body is a pink, impalpable, odorless, tasteless and insoluble powder containing 45 per cent. of bismuth, 15 per cent. of iodine and 3 per cent. of formaldehyde. It is a well-known chemical law that when iodine and formaldehyde are combined, as they are in this body, they are dissociated in *statu nascendi* from their combination under the chemical and physical conditions present on wound surfaces. This evolution of free iodine and free formaldehyde takes place *gradually*, as can be easily demonstrated. The effects of this powder on a wound are those of bismuth, iodine, formaldehyde and cresotinic acid, i. e., antiseptic, astringent and alterative. The clinical use of the powder was preceded by bacteriologic tests and experiments on animals. Administered to dogs in doses of two grammes (30 grains) three times daily, it produced no toxic symptoms; the only effect noted was the production of constipation. The organisms of pus, as well as cultures of colon and typhoid bacilli, kept at 40 C. for from three hours to two days in contact with the powder, show no growth upon transplantation to fresh culture media; this fact illustrates the long-continued antiseptic power due to the gradual splitting off of the constituents.

For six months past the powder has been in constant daily use in several hospitals as a dressing after operations and in the general class of out-patient surgical cases in which are present active inflammatory processes accompanied by disorganization of tissue and excessive discharges. In the post-operative cases, union by adhesion or first intention was obtained in every case. Its use in infected wounds (burns, scalds, abscesses, suppurating surfaces, leg ulcers, etc.) showed remarkable effects in checking pus formation, drying secretions and in promoting granulations. In the out-patient surgical department of the Pennsylvania Hospital where the powder has been tried side by side with iodoform, aristol and several other dusting powders, it was noted that it uniformly cleans a wound better than any of the others, has an equal if not greater influence on granulation and induces more rapid healing. In no case have toxic effects of any kind resulted nor has it been necessary to discontinue its use because of disagreeable symptoms. This powder is interesting from a purely scientific standpoint because it is a new synthetic compound; clinically it is interesting because it is a compound of bismuth, iodine and formaldehyde so combined chemically that its active constituents are slowly split off, so that their effects are long drawn out and are not irritating or toxic. A detailed clinical report of the cases treated with the powder will be published later.

Ice or Heat for Local Application.—*Memorabilien* quotes Ewart to the effect that he has frequently found ice effective in painful articular rheumatism, arthritis and other affections which were aggravated or at least not improved by the application of heat. He rubbed the aching part with a smooth piece of ice and found that this gentle massage and cold cured a number of cases of acutely painful rheumatic arthritis of the hip-joint which had resisted all medicinal treatment and even baths of hot air. He also found that it relieved at once the severe pleuritic pains at the base of the lung in a number of cases of acute pneumonia.

NEW METHOD OF ANCHORING THE KIDNEY— A PRELIMINARY REPORT.

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Surgeon to Immanuel Hospital, Professor of Principles of Surgery and Clinical Surgery, Omaha Medical College, etc.

OMAHA, NEB.

If a multiplicity of methods is an indication of unsatisfactory results, nephropexy must be the least satisfactory operation known to the surgeon. Dozens of methods have been exploited, each with a claim of superiority, but all based on four cardinal principles.

1. In April, 1881, Hahn reported his first cases of nephrorraphy for movable kidney. The sutures were passed through the fibrous capsule proper, the kidney being fastened to the edges of the deeper structures of the lumbar wound. Many slight modifications of this method have been made, but the principle of all has been the same as that originally used by Professor Hahn.

2. The method of decortication. Tuffier was the first to practice this method. He dissects off a portion of the posterior surface and convex border of the proper capsule of the kidney, and the organ is held into the wound by sutures, thus obtaining direct union between the deep muscles and fascia and the parenchyma. Jacobson modified this operation by dissecting off a flap of the fibrous capsule and stitching it to the lumbar fascia and muscles. Others make a double flap of proper capsule and suture each flap to the respective wound edges.

3. Senn's ingenious method, by which the kidney is held in position by a sling of gauze about the upper and lower poles, and the whole wound allowed to heal by granulations, is now one of the recognized principles of treatment of this troublesome disease.

4. Vulliet's method of making use of a strip from the tendon of the erector spinae muscle to underrun the fibrous capsule, the free end of the strip of tendon being then attached to the muscle, illustrates a fourth principle in the treatment.

DISAPPOINTMENT FROM ALL METHODS.

Surgeons have been much disappointed in the results of all these methods. Relapses are frequent and the more carefully one follows up the after history of his cases, the less confidence he is likely to have in his results. I know of some of my cases that have relapsed and have been impressed with the number of cases that have come to me with freely movable kidneys and bearing the scar of a previous operation done by well-known skillful surgeons. The adhesions between the true capsule and the lumbar structures are not likely to be firm. They become stretched in time and the kidney is likely to become as movable as before. The same may be said of the Senn method. No matter how firmly the kidney is held in place by the cicatricial tissue at first, we all know the later history of cicatricial tissue and there is no reason to suppose that in this region it will behave in any different manner than usual. All know the fate of large numbers who were subjected to the McBurney operation for hernia a few years ago, the plug of cicatricial tissue acting well for a time, but finally softening and stretching, allowing relapse of the hernia. Another theoretical objection to the Senn method is the effect of so much scar tissue upon so delicate an organ as the kidney.

Flaps of the true capsule stitched into the wound have appealed to me as being the best of the tried methods. But even here we have to trust to the adhesion between capsule and wound structures remaining intact without

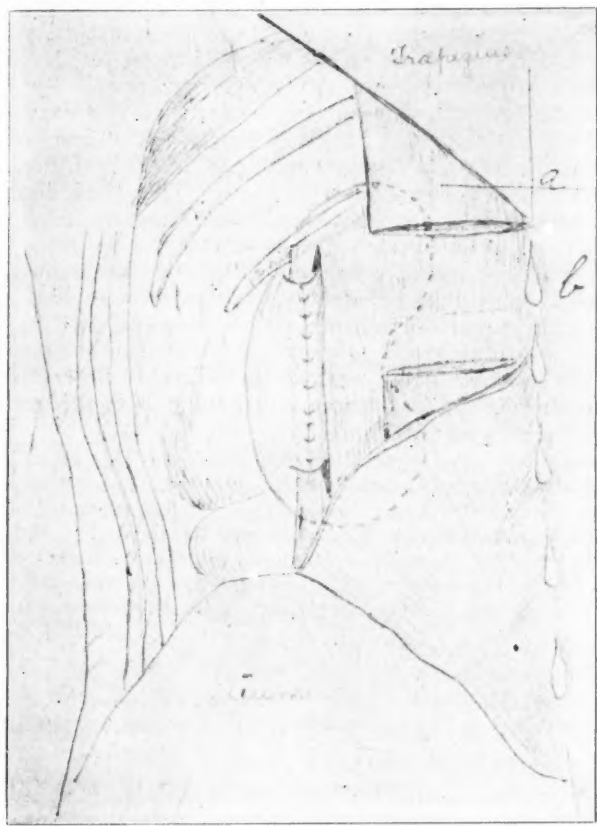
stretching. Results show that even after this operation there are frequent relapses.

NEW METHOD BY MUSCULAR ATTACHMENT.

The use of a tendon of the erector spina appeals to me as better than the others described, except that it is difficult of execution and there is a question whether the free end will remain firmly fixed to the muscles. The method I wish to propose can best be explained by a report of the only operation yet done by this technique.

A. J., an unmarried female, aged 21, has frequent gastric crises and constant lumbar pain, especially on the right side. She lost 25 pounds in weight during the past year and is very anxious for relief. On examination, the right kidney is found freely movable, falling so low that the upper pole can be felt on bimanual examination. The left kidney is also somewhat movable. She entered Immanuel Hospital Nov. 9, 1901, and an operation was performed on the right side November 11.

Quadratus lumborum.



a. Erector spinae. b. Quadratus lumborum.

The incision extended from the lower rib to near the crest of the ilium, a hand's breadth to the right of the spinous processes of the vertebrae. The fatty capsule was reached just anterior to the outer border of the quadratus lumborum and was opened and a large part of it trimmed away. The kidney was pushed into place by a cylindrical pad placed under the abdomen.

DETAILS OF THE PROCEDURE.

When the kidney was well exposed, an incision was made through the proper capsule from two cm. below the upper pole to a point two cm. above the lower pole. This incision was placed vertically on the posterior surface near the convex border. The capsule was stripped loose from the kidney substance for a distance of three-fourths of an inch anteriorly and posteriorly to the incision in the capsule. From the upper and lower extremities of the vertical incision a perpendicular incision three-fourths of an inch long was made through the

capsule, this giving two flaps of capsule three-fourths of an inch wide by about two and one-half inches long.

Next a strip—the thickness of a little finger—of the other border of the quadratus lumborum muscle was split from the remainder of the muscle, the fibers being separated by the handle of the scalpel. This separation extended from the muscular attachment to the twelfth rib downward for two and one-half inches, or the slip in the muscle was made as long as the length of the capsular flaps before described.

An artery forceps was passed through the slit in the muscle, made to grasp the free border of the posterior flap of the kidney capsule and then withdrawn, bringing the flap of the kidney capsule through the slit in the muscle. The two capsular flaps were next brought together over the bundle of muscular fibers thus isolated from the border of the quadratus lumborum, and stitched

together with a running suture of fine chromicized catgut, the needle being allowed to penetrate the muscular bundle at two or three places. The lumbar wound was next closed by tier sutures of catgut, the skin wound being closed with horse-hair. Aside from a slight infection, the wound did well.

The patient never had a temperature above $99 \frac{2}{5}$ degrees, was up on the twenty-second day and the kidney thus far is in place and the patient freed of her former symptoms. It is, of course, too early to predict the final results.

This method is reported because it seems to me to represent a new principle in treatment. We have here a portion of muscle which can not become loosened from the kidney, and which continues its own physiological function. I can see no way of the kidney thus anchored becoming loosened.

It has occurred to me that possibly the contraction of the muscle may give rise to pain or inconvenience. Inasmuch as by all the older methods, the effort has been made to effect as close an organic union as possible between the kidney and the deep lumbar muscles and fascia, and the more close the union the better the results were considered, I can see no objection to the method here proposed.

After writing the above, I found in the *New York Medical Journal* of Dec. 7, 1901, a short article by Carl Beck, New York, "On a New Principle in Nephropexy," which I take the liberty of quoting: "The principle of this—as it seems to me—new procedure consists in suspending the kidney after having buttonholed it, on the fibers of the nearest muscle. I may be permitted to give the following preliminary report: In a woman of 24, the right movable kidney, after being exposed by a lumbar incision, was perforated near its lower pole by a trocar of moderately large size, a procedure which caused but little hemorrhage. The margin of the spinalis dorsi muscle was incised then and a bunch of fibers, just large enough to pass the renal buttonhole, mobilized. By a Pean forceps, this band-like muscular flap was drawn through the renal hole made by the trocar. Then the end of the flap was fastened somewhat below its former muscular bed by iodoform-silk sutures. Thus the kidney was held *in situ* only by living tissue. There was no reaction and the operation seems to be a success."

The principle of this method is the same as my own, an effort to hold the kidney in its fixed position by living muscular tissue. But in my method there is, first, not so much traumatism to the kidney substance as in Beck's; second, in my method the muscular fibers are none of them cut, but remain intact and able to perform their functions as before.

NOTE.—After the publication of an abstract of this paper I received a reprint of an article published in the *Medical Record* by Dr. J. F. Baldwin of Columbus, Ohio. I had not heard of his method of anchoring the kidney and his article had been overlooked. My method is so similar to his that I am glad at this time to acknowledge his priority, though the method devised by me was entirely independent of his work along this line.

B. B. D.

THE WORK OF THE DIGESTIVE GLANDS (PAWLOW) AND ESTIMATION OF PEP- SIN DIGESTION BY MODERN IN- STRUMENTS OF PRECISION.

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One of the most noteworthy contributions in the line of investigations of the digestive process is without doubt Pawlow's recent book, "The Work of the Digestive Glands." It is originally written in Russian and translated into German by Dr. Walter, "Die Arbeit der Verdauungsdrüsen."

An English translation has not yet appeared; it may not, therefore, be out of place to mention briefly some of Pawlow's main achievements. He resorted to an original method of research by forming a sack from part of a dog's stomach, fastening it outside the abdomen and taking care to keep the innervation perfectly intact. Processes going on in the stomach could be observed in the sack without being interfered with by the presence of food. He found that there exists a perfect relation between the amount of food taken and the quantity of gastric juice secreted; the more food, the more juice.

The secretion of gastric juice and pancreatic juice

occurs in the form of a curve gradually increasing and then decreasing. The glands furthermore produce a juice of a different chemical composition with more or less pepsin ferment or with a variable amount of different ferments as is the case in the pancreatic gland. On the other hand, the degree of acidity of the gastric juice is constant and does not vary. Oscillations occur with an increased quantity of the juice and with neutralization by mucus. A specific action of the gastric glands is observed after a mixed diet as well as after feeding on a single article of food. This specific action pertains to the properties of the juice, to its quantity, its course and duration of secretion. After eating bread the juice shows the greatest peptic strength; next in order comes meat and at last milk. The so-called gastric bread-juice contains four times as much ferment as gastric milk juice and is four times as concentrated.

The acidity is highest for meat and lowest for bread. The hourly intensity of the work of the glands is about the same for milk as for meat and is much smaller for bread. But bread requires a longer time for work. A characteristic change in the properties of the juice takes place with every variety of food. Also a certain hourly process of secretion is observed to correspond to the kind of food ingested. With meat there is a maximum of secretion during the first or second hour, the quantity of juice being alike in both hours. With bread there is a maximum during the first hour, and with milk during the second and third hour. The juice is strongest during the first hour after meat has been taken, after bread during the second and third, and after milk it becomes strongest after the third hour. After bread a more concentrated juice is secreted, thus avoiding an increase of the quantity of the juice and thereby an excess of HCl. The total quantity of juice after bread diet is not much larger than after milk, but it is extended over a much longer time, so that the hourly amount of juice after bread is one and one-half times less than after milk or meat. HCl, as is well known, would prevent the conversion of starch.

In order to obtain pancreatic juice a piece of the duodenum containing the pancreatic duct was sewed into the abdominal wound.

The pancreatic juice varies like the stomach juice in regard to its quantity. It contains its three ferments in different percentages after different foods. Milk pancreatic juice has the largest amount of albumin ferment, whereas there is less in bread and meat pancreatic juice.

Amylolytic ferment shows the highest figures in bread juice, less in milk and meat juice. But bread pancreatic juice contains less fat ferment, while milk juice is rich in fat ferment. Meat pancreatic juice holds a medium position.

Vegetable albumin calls for the largest amount of ferment from the pancreatic gland as well as from the stomach, whereas milk albumin calls for little. The stomach pours a concentrated ferment over the bread, the pancreas a very diluted one.

Without any doubt there is a distinct adaptation of the juice to the food. Starchy food gets more amylolytic ferment and fatty food more fat ferment.

The next part of Pawlow's work shows that the nervous vagus possesses secretory fibers for the stomach and pancreas. At the same time, it also has an inhibitory influence. Pawlow proved furthermore that after cutting the esophagus and feeding the dog, a flow of gastric juice occurred just as if the food had reached the

stomach. This flow, however, did not occur after the cutting of the *nervi vagi*. If the dog with a cut esophagus is fed on stones, sand, acids, etc., no stomach secretion takes place. This proves that the appetite, the desire for food and the feeling of satisfaction during its consumption helps to promote the flow of gastric juice. This flow occurs even when the meat is only shown to the dog but is not actually swallowed by him. Appetite is the equivalent of a certain quantity of gastric juice at the beginning of the meal.

The continuance of the flow of gastric juice is not a simple result of mechanical irritation. Meat juice, bouillon and extract of meat proved to be powerful promoters of secretion, and to some extent even water had its influence. When bread or eggs are eaten without appetite, they lie like stones in the stomach without any digestion taking place. The appetite-juice is the initiative of the secretory process; this first juice produces the setting free of chemical substances contained in the albumin of the bread and has the same effect as meat extract, etc. Those extractive substances cause the further flow of gastric juice and finish the digestion. Fat diminishes the flow and the digestive power. Egg albumin alone and starch alone do not cause any secretion of gastric juice.

With the exception of the psychic secretion, the secretory work is a reflex act in which the promoters of secretion irritate the peripheral ends of the centripetal nerves. HCl causes the flow of the pancreatic juice by reflex action as soon as it appears in the duodenum. Starch does not stimulate the pancreatic secretion but increases the percentage of amylolytic ferment. Fat promotes secretion of pancreatic juice and increases the percentage of fat ferment. Sleep does not inhibit the action of the pancreas. Water produces a distinct secretion in the pancreas as well as in the stomach. Alkalies diminish the pancreatic secretion. Pawlow explains the action of amara (bitters) as appetizers. Table decorations, pleasant odors of the food, etc., are helpful as appetizers. Food as well as water must have a pleasing appearance, flavor and taste in order to cause psychic digestion.

Bouillon as a first course is the most important chemical promoter of secretion. Acid as medicine promotes pancreatic secretion. Milk is an exceptionally good food because it needs an extremely low degree of digestive work. Alkalies retard digestion, thereby producing times of rest for otherwise continually working organs.

Pawlow published about a year ago a second paper: "The Experiment as a Timely and Uniform Method of Medical Investigation." Again, he emphasizes the complete adaptation of the work of the digestive glands to the food. In regard to the salivary glands, he found that the mucin glands secreted a thin watery saliva with only traces of mucin upon the introduction of any indigestible substance, whereas eatable things caused the secretion of a more tenacious saliva with much mucin in order to make the food slippery. Further, the drier the food, the more saliva there is. Stones, ice water, etc., will not promote saliva. No purely mechanical or chemical stimulus will promote saliva. But give the dog sand or acids and large quantities of saliva will flow because the sand can not be swallowed otherwise and the acids will not be diluted without it.

Pawlow speaks of a psychology of the salivary glands. By sentiments, wishes and thoughts, often almost unconsciously, we influence the constant physiologic functions of the body. Water, acids, raw eggs and cooked starch

do not influence the flow of bile, but fat increases the amount of bile, as do the extractive substances of meat and the products of albumin digestion. The value of the bile lies in the fact that its addition doubles and triples the action of the pancreatic juice. It is especially the fat ferment which thus becomes strengthened. Bile stops the action of pepsin. Pepsin is dangerous to the ferments of the pancreas. Bile favors the action of the pancreas; it introduces the intestinal digestion. The juice of the smaller intestines proved to be an additional help to the action of the pancreatic juice; it increases the action of all the ferments, but especially that of the albumin ferments. The acid foods having passed the pylorus, produce by reflex a temporary closing until they have become neutralized. Those evacuation movements cease while the dog is actually feeding or has food shown him.

Catarrh of the stomach, experimentally produced by nitrate of silver solutions, showed a condition of asthenia and irritable weakness. The production of gastric juice was at first higher than normal and later on much lower. The average juice production was only two-thirds of the normal. The gland is made irritable and tires more readily. Pawlow recommends, therefore, according to his findings, the use of meat extracts and alkalies.

Before considering the results of Mett's method of determining the amount of pepsin digestion by means of capillary tubes, I would like to briefly mention the method of Hammerschlag: Fifteen grams of albumin are dissolved in 1000 c.c. of warm water and filtered. Then HCl is added until 100 c.c. contain 0.394 HCl (18 c.c. of HCl P.G. to one quart). Use two Esbach tubes, mix 10 c.c. of Hammerschlag's solution with 5 c.c. of gastric juice. Take 10 more c.c. of Hammerschlag's solution and mix with 5 c.c. of water. Fill each tube to the letter U; place the tubes for one hour in the incubator; then fill the tubes to the letter R with Esbach's solution; let the tubes stand for 24 hours. The difference in the amount of precipitated albumin corresponds to the amount digested.

Schüle, Gintl, Kövesi, Troller, Bachmann and Schiff have published their experience with this method. There have been several criticisms of this method, all of which have been repulsed by Schiff. Yet there is no doubt that the method can only have the value of an estimation. In cases of very feebly digesting juices, the presence of albumin in the gastric juice itself will give too high a figure, so that a weak digestive power will not be recognized. Schiff admits this.

The normal figures showing the percentage of pepsinogen with Hammerschlag's method and according to various authors are as follows: Gintl, 85-96 per cent.; Troller, 75.90 per cent.; Schiff, 60.68 per cent.; Schüle, 44.78 per cent.; Kövesi, 50.60 per cent. The opinion of Gintl in regard to the pepsinogen secretion is as follows: "A decided diminution of the value of free HCl to zero and even to negative values does not necessitate a similar condition of pepsin. With a deficit of HCl, there can yet be a comparatively high value of pepsin. He finds no characteristic pepsin secretion in ulcers, cancer, etc. Values from zero to normal may be found under these circumstances.

Kövesi finds between HCl and pepsinogen secretion there is no parallel. In sub- and an-acid juices, the quantity of the pepsinogen with few exceptions is smaller, but not quite proportional and adequate to the quantitative diminution of HCl. Destructive processes of stomach tissue influence the pepsinogen secretion less

than that of HCl. He finds the pepsinogen secretion normal in ectatic and atonic conditions but not in cancer. Troller says: In cases of chronic anacidity we can yet find a moderate pepsin and rennet production. Schiff considers that there is no parallelism between HCl and pepsin secretion. The latter is able to resist disease much longer than the secretion of HCl. In hypo- and ana-chlorhydria he finds no parallelism. His three cases of achylia gastrica simplex showed no pepsin digestion. In cases of cancer he always found severe diminution of pepsinogen production. In hyperchlorhydria he found normal, not increased values of pepsin. If we do not consider minor differences, we find that all investigators begin to realize that HCl secretion differs from pepsinogen secretion. The former is much more oscillating. We now speak of a pepsin question.

Pawlow's assistants do not make use of Hammer-schlag's method. They prefer that of Mett, which I wish to describe here in Pawlow's own words: "The methods used for analysis of the digestive juices were as follows: The albumin digestive power of the juice was tested according to Mett. This method has been perfected in our laboratory and has since been in constant use. Glass tubes with a lumen of 1-2 mm. are filled by suction with liquid egg albumin, which is then coagulated at a temperature of 95 C. Then the glass tube is cut into small pieces; these are soaked in 1-2 c.c. of the liquid which is to be tested. These preparations are placed for 10 hours in a thermostat at the temperature of 37 or 38 C. If the albumin dissolves, this process occurs at the two ends of the glass tubes. At the end of the 10 hours, one measures by the aid of a millimeter scale and a low-power lens, the length of the entire tube and the length of the column of coagulated albumin which has not been digested. The difference in numbers expresses in millimeters, or its fractions, the length of the digested albumin column. This method leaves nothing to be desired in facility of its use, objectivity and a precision of its results. Special experiments by Dr. Ssamojloff have shown that the digestion of the albumin columns within the first 10 hours by using the juices at our command, corresponded absolutely with the duration of the digestion proper. This was the case even if the juice had the greatest digestive power. This experiment weakens the very natural suspicion that the digestion of albumin in the glass tube could not take place with equal rapidity at the different depths of the tube, owing to the greater or smaller collection of digestive products filling the lumen. Consequently we obtain an accurate measure of the digestive power of the different juices by the length of dissolved albumin in the cylinder at the same given time.

Borrissow in making his experiments in the laboratory of Professor Tarchanoff with this method clearly proved the underlying relation existing between the length of the digested albumin cylinder and the amount of pepsin contained in the examined juice. The following law resulted. In the digestive juices under observation the quantity of pepsin is like the square of the rapidity of digestion, that is, like the square of the millimeters of albumin cylinder, which were dissolved in equal time by the juices. We will illustrate this law by an example. If one juice has digested 2 millimeters and the other during the same given time, 3 millimeters, the relative quantities of pepsin of these juices are not expressed by figures 2 and 3, but by their squares, namely, 4 and 9. The difference is clear; according to the millimeter scale calculation, the second juice would

contain one and one-half times more ferment than the first; according to our law, however, in taking the square of the digestive numbers the second juice is two and one-quarter times stronger than the first. Naturally many experiments have been made with exact artificial pepsin solutions before deducting the above law.

Borrissow arrived at his conclusions independently of Schutz, who had published before him his experiments, which, although entirely different, yet gave the same result. Schutz made polarimetric determinations of quantities of pepsin as resulting from the digestion of albumin. The absolute similarity of the results with such entirely different methods of investigation furnish a guarantee of the exactness of this law. Here I wish to express my regret that the method of Mett, although published and advocated as long ago as 1889, has not yet found the widespread use and appreciation which it so well deserves. How easily could it be made the universal method of determining albumin-digestive ferments, in order to make all experiments with these ferments capable of comparison, and no one will deny that this would be highly desirable.

With such a universal method, all juices of the different animals or men could be represented by a universal scale, and this might lead to important conclusions relative to the oscillations of ferments of different individuals, species and genera. We have yet to state that with Mett's method, the different diameter of the lumen of the glass tube is without consequence, and also that egg-albumin is of sufficiently stable composition to warrant its use as a test effect.

Linossier, who has examined the Pawlow-Mett method carefully to test its usefulness, considers it by far the best. He does not think the fine subdivisions of the scale into 0.01 mm. desirable, and prefers a scale indicating only 0.5 mm. Of the egg albumin he only uses the more liquid portion. For the closing of the glass tubes he recommends paraffin.

Roth allows the juice to work on the albumin for 24 hours. As shown above, Pawlow gives good reasons for preferring 10 hours; Schiff, therefore, criticises Roth's results, which are: average duration of digestion 4.5-5 mm. He does not agree with Pawlow and Linossier in pronouncing the method absolutely exact; yet he admits that it gives the best results. Oscillations of 2 mm. maximum are rare. His objection to Hammer-schlag's method is that differences of one-half pro mille can be the fault of the method as well as the result of correcting the digestion. With Mett's method 0.1 mm. shows digestion beyond any doubt. Roth also admits that the digestion is only, very generally speaking, proportionate to the quantity of HCl, yet there are cases of sub- and an-acidity with a comparatively better pepsin digestion, although Oppler states the contrary.

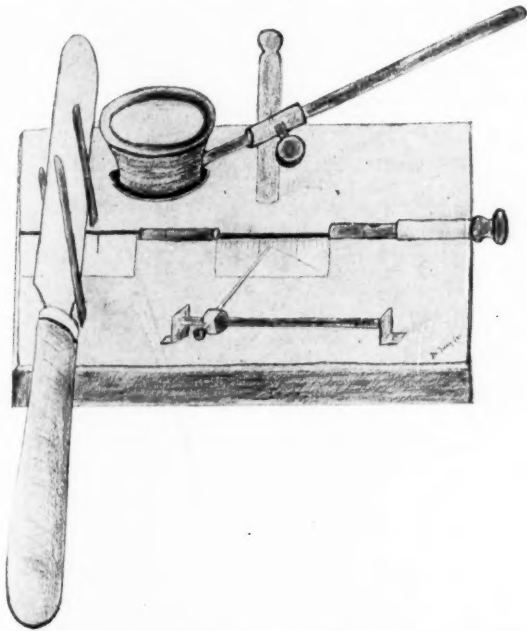
Roth found juices which surpassed the normal digestion. In three of his cases, this was the only pathologic finding to account for the dyspeptic symptoms. This author states that uncomplicated cases of hyperchlorhydria show no special increase of pepsin, yet two of his values for superacidity lie above the normal maximum. For purposes of therapy, Roth considers the method of Mett of importance. In order to improve the digestive values, he tried to give the normal acidity to the juices under examination, but he did not succeed in all cases and Schiff blames the method.

I would like to state here concerning the cases enumerated, that all figures of atrophic catarrh (7), all those of gastritis chronica (4) with only one exception

(3), all figures of carcinoma (15) with one exception (14), are either raised or not altered. All gastric crises are altered until correct (5), and in 17 atonies there are only 4 mistakes (13). I would say that in superacidity, we are not able by the mere addition of alkalines to raise or diminish the figures of pepsin. This corresponds to the recently discovered fact that the pepsin digestion need not correspond to the values of HCl.

Roth gave in 18 out of 94 cases Hammerschlag's figures, but he drew no comparison, and says that an accurate comparison can not be made since Hammerschlag's method is only one of estimation. I believe Dr. Schorlemmer of Berlin will soon publish a series of comparative pepsinogen estimation with both methods, which will serve to determine their relative value. For absolute precision and from a mathematical point of view the method of Mett must be considered a better one.

Pawlow says that the lumen of the tubes should be 1-2 mm. I have tested tubes of 4 different sizes and thought at first that capillary tubes with very fine canals would show a finer graduation. This was not so. The



following figures will show that tubes below 1 mm. indicate rather low numbers. The reason for this seems to be the difficulty of the outflow of the digested albumin. The area of a circle varies as the square of the radii: $a : a = r^2 : r^2$; therefore, $0.4 : 1.0 : 1.5 : 2.0 = 4 : 25 : 55 : 100$.

A glass tube with 1 mm. lumen therefore has a capacity for outflow more than 6 times greater than a tube with 0.4 mm. diameter. On the other hand, a tube with 1.5 mm. lumen has only double the outflowing capacity of a tube with a 1 mm. lumen.

0.4 mm. lumen.	1 mm. lumen.
1st case 1.8 to 1.6	2.1 to 2.2
2d " trace	0.4
3d " 0	0.2

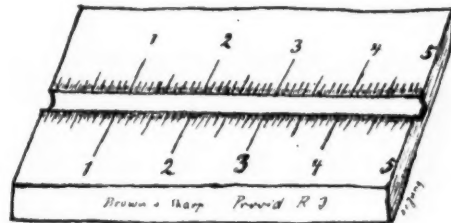
Then I tested tubes with apertures of 1 and 1.5 mm. The result showed that both worked practically alike:

1 mm.	1.5 mm.
1st....1.6 + 1.8 = 3.4	2 + 1.4 = 3.4
2d.... 0 + 0 = 0	0 + 0 = 0
3d....1.8 + 1.8 = 3.6	1.6 + 1.6 = 3.2
4th....0.8 + 0.8 = 1.6	0.8 + 1.2 = 2.0
5th.... 3 + 2.6 = 5.6	2.6 + 2.8 = 5.4
6th.... 2 + 2 = 4	2 + 2 = 4

These six random cases show that 1 mm. tubes give practically the same results as 1.5 mm. tubes. There was noticed, however, a difference in albumin only two days old and albumin one week old:

1.5 mm. 2 days old.	1.5 mm. 7 days old.
2 + 2 = 4	3 + 3 = 6
1 + 0.8 = 1.8	1.4 + 1.2 = 2.6

Dr. Schorlemmer of Berlin has constructed a suitable apparatus and allowed me very courteously to have it duplicated by Hermann Rohrbeck in Berlin, which kindness is hereby gratefully acknowledged. The advantages of this instrument are that one can both measure and cut with it. On the left is a knife with a scale underneath, enabling one to cut off pieces of exactly 3 mm., which after digestion has taken place can be measured on a graduated glass scale. The tubes are kept in place by a spring. In order to distinguish 0.5 mm. a lens of 2 or 3 times magnifying power is applied. I found it difficult to get always the best light on the scale, which also seems to be too short, being only 3 mm. in length. If it happens that a tube is a few



Good tube

Bad tube.

fifths of a millimeter longer than the ruler, the measuring on one side will not be correct unless one reverses the ends. Since the knife has always a slight inclination to oscillate it does not always cut off exactly a piece 3 mm. in length. In order to overcome this difficulty, I resorted to a simpler arrangement where the graduation is not made upon a glass slide, but upon steel, which is indestructible and can be cleaned. Furthermore, it is 5 cm. long, divided into 0.2 mm. and the scale is plainly visible by simply placing the tube into a rounded depression made for this purpose and reading the markings of both ends through a magnifying glass. I even use a simple steel ruler with 0.2 mm. graduation which I place on a black background and put the tube alongside of it. These instruments were made to my satisfaction by the firm of Messrs. Brown & Sharp Manfg. Co., Providence, R. I.

As soon as a glass tube filled with coagulated albumin has been opened, the atmospheric influences begin to work and destroy the solidity of the albumin column. It is necessary to use an egg albumin of equal consistency for filling the tubes. It ought to be either the more liquid part or the more solid part, care being taken

not to mix both in the same tube. The tubes should not be opened before they are 3 days old. They should be kept well closed at both ends either with cotton or rubber caps. Just before use, a tube is cut into suitable pieces, care being taken to use only tubes free from air bubbles. I prefer after all experiments a tube with a lumen of 1.5 mm., which shows, as we have seen, the same measurement of the digested parts and has the advantage over the 1 mm. tube of being more easily read. The larger tubes show sharper markings, because the digested portion of the albumin column can flow out more readily. This difficulty was well marked with 0.4 mm. tubes; if the edges are not sharp the albumin column has not been of equal consistency. The best tubes show 3 zones: 1, albumin, sharply cut; 2, a fine hazy cloud; 3, clear glass; or 2 zones: 1, albumin, sharply cut; 2, clear glass.

Two tubes are always placed into 0.5 c.c. gastric juice and the average digestion of both is taken as the result. A ruler of the finest graduation of fifths of millimeters being employed, the accuracy of measurement to millimeters and even half millimeters is guaranteed.

Case No.	Diagnosis.	Mathieu. c.c.	Total acid	Free HCl.		Mett. Diameter.		Hammer-schlag.	Rennet. Zymogen.
				HCl Def.	HCl Def.	1 mm.	1.5 mm.		
1	Enteroptosis...	60	24			3.8			
2	Gastroptosis, eructatio nervosa.	56	24			2.2			
3	Catarrh ventri, chronic.	240	16	0				57	pos 1:160
4	Catarrh chronicus, atonia	200	22	0.32		0.1		25	pos. 1:80
5	Cat. chronic, insuff., mitral, atonia.	292	48	12		9.5		46	
6	Epilepsy, atonia, pylorospasmus(?)	34	0	18		0.5		20	
7	Enteroptosis, catarrh chronicus.	230	30	8		0.25		16	
8	Atonia, catarrh. chronicus	96	58			10		70	
9	Enteroptosis, superacidity	86	34			4.7			
10	Enteroptosis, colitis chronica, ovaries removed.	98	66			5.6			
11	Superacid. nervosa.	82	22			2.8			
12	Enteroptosis	48	12			1.5		50	
13	Catarrh chronicus.	48	12			0.7		50	pos 1:160
14	Colitis membran., subacid. nervosa.	274	44	8		0.8			
15	Ectasia	14	0.54			0.1			
16	Catarrh ventri.	74	32		4	6.			
17	Superaciditas nervosa.	52	26		2.4	3.4			
18	Enteroptosis, constipatio chronica	35	15		3.4	3.4			
19	Catarrh chronicus, vomitus matutinus.	42	6		3.6	3.8		33	
20	Subacid. nervosa, enteroptosis	78	30					47	
21	Dyspepsia nervosa.	74	60					80	
22	Dyspepsia nervosa, superacidity	84	52			11.		43	
23	Superacidity	16	58	0.2		0.2		17	
24	Achylia gastrica	340	54	42		10.8		67	
25	Gastrosuccorrhoea superacid.	191	70	38		10.			
26	Atony.	40	10			1.5			
27	Tuberculosis pulm., catarrh ventri.	62	8			0.4			
28	Catarrh ventri chronic.	291	46	16				50	
29	Atonia, subaciditas.	110	32			6.		60	
30	Diarrhoea atonia	191	70	30		4.		75	pos. 1:160
31	Chlorosis atonia	70	30		50	1.6		59	
32	Catarrh ventri, chronic.	92	64			5.6			
33	Superacid. nervosa.	182	94	56		3.6			
34	Atonia, superacid.	72	30			1.0			
35	Superacid. nervosa.	100	66			5.		67	
36	Superacid. nervosa.	82	32		2.	2.3			
37	Gastroptosis, anemia	180	84	44		3.1			
38	Atonia, superacid.	74	42			5.2			
39	Colitis chronica	82	46			4.2			
40	Atonia, superacid.	230	82	46					

I. SUPERACIDITY CASES; METT'S METHOD.

Case No.	Total Acidity.	Free HCl.	Mm.
9	96	58	10
10	86	34	4.7
11	96	66	5.6
12	82	22	2.8
17	74	32	6.0
23	84	52	11.0
25	54	42	10.8
26	70	38	10
30	110	32	6

Case No.	Total Acidity.	Free HCl.	Mm.
31	70	30	3.6
33	92	64	5.4
34	94	56	3.5
35	72	30	1.0
36	100	66	5
37	82	32	2.3
38	84	44	3.1
39	74	42	5.2
40	82	46	4.2

18 cases.

11 to 1 mm., average 5.5.

II.

CASES OF SUB- AND AN-ACIDITY; METT'S METHOD.

Case No.	Total Acidity.	Free HCl.	H.A. Def.	Mm.
5	22	..	32	0.1
7	34	..	18	0.5
8	30	8	..	0.25
13	48	12	..	1.5
14	48	12	..	0.7
15	44	8	..	0.8
16	14	..	54	0.1
19	35	15	..	3.4
20	42	6	..	3.8
24	16	..	58	0.2
27	40	10	..	1.5
28	62	8	..	0.4
32	70	..	50	2.0

13 cases.

0.1 to 3.8 mm., average 1.9.

III.

METT'S METHOD; NORMAL ANALYSIS.

Case No.	Total Acidity.	Free HCl.	Mm.
1	60	24	3.8
2	56	24	2.2
6	48	22	9.5
18	52	26	3.4

4 cases.

9.5 to 2.2 mm., average 5.9.

IV.

SUPERACIDITY CASES; HAMMERSCHLAG'S METHOD.		SUB- AND AN-ACIDITY.	
Case No.	Hammerschlag.	Case No.	Hammerschlag.
9	70	3	57
21	47	4	17
22	80	5	25
23	43	7	20
25	67	8	16
30	60	13	50
33	59	14	50
..	..	24	17
..	..	29	50
..	..	32	75

7 cases.

80 to 43 mm., average 60.

10 cases

75 to 16 mm., average 45.

VI.

HAMMERSCHLAG'S METHOD, NORMAL CASE.

Cases No.	Total Acidity.	Free HCl.	Hammerschlag.
6	48	22	46

VII.

Case No.	Mm.	Hammer-schlag.	Diagnosis.	Total Acid.	Free HCl.	HCl Deficit.
23	11.	43	Superacidity.	84	52	..
25	10.8	67	Superacidity.	54	42	..
6	9.5	46	Atonia nervosa.	48	22	..
9	10	70	Superaciditas.	96	58	..
30	6	60	Superaciditas nervosa.	70	30	..
33	5.4	59	Superaciditas nervosa.	92	64	..
36	5	67	Superaciditas nervosa.	100	68	..
20	3.8	33	Subaciditas nervosa.	42	6	..
32	2	75	Catarrh, chronicus.	70	0	50
13	1.5	50	Catarrh, chronicus.	48	12	..
14	0.7	50	Subaciditas nervosa.	48	12	..
7	0.5	20	Catarrh, chronicus.	34	0	18
8	0.25	16	Catarrh, chronicus.	30	8	..
24	0.2	17	Achylia gastrica.	16	0	..
5	0.1	25	Catarrh, chronicus.	22	0	..

15 cases.

Case. No.	Hammerschlag.	VIII.		
		Mm.	Free HCl.	HCl deficit.
32	75	2	..	50
32	70	10	58	..
9	67	10.8	42	..
25	67	5	66	..
36	60	6	32	..
30	59	5.4	64	..
33	50	1.5	12	..
13	50	0.7	12	..
14	46	9.5	22	..
6	43	11	52	..
23	33	3.8	6	..
20	25	0.1	..	32
5	20	0.5	..	18
7	17	0.2	..	58
24	16	0.25	8	..

15 cases.

From the above list, the following conclusions are drawn:

1. The normal values for the pepsin digestion are, according to Mett's method, 5.5 to 5.9 mm. (List I and III.)

2. With Mett's method, sub- and an-acidity have lower values than normal or superacidity (1.9 mm. is the average). They do not reach the average values of superacidity.

3. The diminution of pepsinogen does not run proportional with that of HCl. Even with a deficiency of HCl, the value of pepsin can be higher than that of mild subacidity. (List II.)

4. Superacidity, generally speaking, has high and highest values of pepsin, yet there are cases of unusually high HCl figures with disproportionately low pepsin values. This points distinctly to a pepsin question. Large quantities of HCl after a Boas test breakfast do not always include a free secretion of pepsin.

5. According to the method of Hammerschlag, 60 seems to be the normal figure of pepsin secretion. (List IV.)

6. With Hammerschlag's method in opposition to Mett, the values of sub- and an-acidity reach the average of that of superacidity. The average values approach each other more with Hammerschlag's method.

5.5 Superacidity: 1.9 Subacidity Mett.

60 Superacidity: 45 Subacidity Hammerschlag.

7. Besides, with Hammerschlag, we see no proportion of the HCl diminution and the pepsin secretion in cases of subacidity. (List V.)

8. The methods of Hammerschlag and Mett show the same proportions in 66 per cent. of the cases. (Lists VII and VIII.)

9. In five cases out of 15 the two methods give different results. In Cases 6 and 23 it is question of normal and superacidity. Hammerschlag's figures do not correspond to the high millimeter readings but only show medium values. On the other hand, Cases 32, 13 and 14 have proportionately high Hammerschlag figures with low millimeter values. The corresponding HCl values are subnormal. In other words, in all those cases in which Mett's method differs from Hammerschlag's, the former seems to approach closer to the values of HCl. Generally speaking, this may be considered as an advantage of Mett's method.

10. It will be necessary in future to examine not only sub- and an-acid juices for their digestive strength, but also superacid juices which heretofore were considered as having *eo ipso* good digestive capacity.

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A VOLUNTARY BOARD OF NATIONAL EXAMINERS.

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At the recent meeting in Washington of the Committee on National Legislation representing the American Medical Association, the subject of reciprocity between the several states was very generally discussed, and considered practically impossible with so many states and territories, each with its own standard and no two alike. More than half of the states were represented at the conference and the interchange of opinion was free. The committee appointed one year ago made a majority report through its secretary, Dr. Emil Amberg, advising against reciprocity, and in favor of a National Board of Examiners. The committee had, however, been working upon the hypothesis that such a board could be created and sustained by act of Congress. Letters read from Senator Burrows and others caused the committee to drop the idea of a national board created by act of Congress as such legislation would certainly be unconstitutional and in conflict with the several states. The states are sovereign and can not be coerced by the general government.

There is, however, nothing to prevent, or seriously in the way of a Voluntary National Board of Examiners, whose examinations shall be of such a character and high standard as to command the respect of the several states and cause them to issue license to any one who has successfully passed such an examination. To fail to do so, as was said by Professor William Welch in the discussion, would make such state ridiculous. I therefore offered this amendment to the report of the committee, which was promptly accepted and unanimously approved after full discussion. I then suggested that this board consist of six members, viz., the Surgeons-General of the Army, Navy and Marine-Hospital Service and three equally representative civil practitioners; two to be elected by the House of Delegates of the American Medical Association and one by the American Congress of Physicians and Surgeons. A seventh might be added to represent the National Board of Examiners. This board would at once have the confidence of the profession as it would be comprised of able men absolutely above suspicion. The time of

meeting should be from June 1 to July 1, so as to accommodate the graduates of all schools.

The examination should be both theoretical and practical. Applicants should be taken into the wards of hospitals and be given opportunities to make diagnoses and examine urine, sputum and blood, as well as outline courses of treatment.

The place of meeting should, as a rule, be in Washington; provided its hospital facilities are adequate. It is desirable, however, to vary the place of meeting from time to time so as to make the board truly a national one, and to subserve the interests of the greatest number of applicants.

The fee should be not less than \$25, or the maximum amount charged by a state board, so as not to bring the national into too great competition with any state board.

Now, what would be the inducement to graduates to go a distance, assume greater expense possibly than they now do, only to get a diploma which *need* not be recognized by the states? My answer is that as every state and territory in the Union now recognizes the commission of medical officers of the Army, Navy and Marine-Hospital Service, so they would be glad to recognize the certificate or diploma of any one passing an examination conducted by able and distinguished men representing all sections of the country. A man with such a diploma should be permitted, like the Constitution, to follow the flag and practice medicine and surgery anywhere within our possessions. Now, if a man moves from Pennsylvania to New Jersey he must pay \$25 additional for the privilege, and in other states pass another examination as well. This is manifestly unfair to men who are excellent practitioners, but necessarily rusty in the theoretical branches, such as anatomy, physiology, chemistry, etc.

There would be another inducement to young men to appear before the national instead of a state board: there are many positions within the gift of the federal government, such as contract surgeons in the Army, Navy and Marine-Hospital Service; physicians to Indian agencies and members of pension boards of examiners in all parts of the country, requiring the services of more than average men. Any one holding the diploma or certificate of such a national board would at once have the advantage over any one else less fortunate. In truth, in nearly all such cases, a further examination could, with perfect justice to the government, be waived. So manifest are its advantages that each year there would undoubtedly be a larger number of applicants; and in time sub-boards would be necessary to accommodate the number applying—each to meet in some large city with abundant hospital facilities and accessible to many applicants.

There is but one serious question involved, and that is whether or not the expenses of such a board could be met for a year or two out of the fees of applicants. There would be only three or four examiners to pay, as I was told by each of the Surgeons-General that they would act, or detail some one from the service, gratuitously.

There is also, I take it, little doubt that suitable quarters for conducting the examinations could be furnished by the bureau of health which is almost certain to be established by this Congress.

Should the fees be insufficient to secure the services of the best men, the American Medical Association could well afford to pay for the two members appointed by it. Certainly, this great organization, with money in its

treasury to spare, can well afford to give something to a cause having behind it the best elements in the profession. It is unfair to ask that any one worthy of the appointment as examiner should give a month, possibly longer, to even so excellent a cause without compensation. So could the American Congress of Physicians and Surgeons provide, if necessary, for its appointee.

A voluntary board is better for the profession than a compulsory one, for its standard can reasonably be made higher, and its certificates be a diploma *cum laude*. Moreover, the profession will be elevating and purifying itself and not trusting to legislation to accomplish the purpose which under our form of government is impracticable, even though it were desirable.

I have little doubt, however, that the fees would be sufficient to pay the examiners well even the first year. If the examinations should be held in Washington it would be very accessible to all of the eastern schools, representing, we will say, a thousand graduates. There will be more, as Philadelphia alone has each year about 400. The eastern schools are of such standard that they would encourage their graduates to go before the Voluntary National Board, and it would be safe to count upon 10 per cent. (100) of the graduates of Washington, Baltimore, Philadelphia, New York, Richmond and Charlottesville (University of Virginia), and other cities adjacent to the capitol doing so. Twenty-five hundred dollars should thus be assured; the expenses would be nominal and all over and above expenses would be divided between the three examiners. I am informed that the officers representing the three public services would be estopped from accepting compensation. This 10 per cent. could be probably doubled by the board meeting in Washington a week, and then spending a week in each of the three large cities adjacent to it, viz., Baltimore, Philadelphia and New York. The medical schools in these cities would willingly furnish quarters and facilities for conducting the examinations, and the hospitals furnish all necessary clinical advantages. This plan has been unanimously endorsed by the delegates from the several states meeting with the Committee on National Legislation and will be recommended to the House of Delegates at the coming meeting of the American Medical Association. It is to be hoped that it will be carefully considered and either it or a better plan at once inaugurated, as something should be done to encourage a higher and better medical education and to give in return something in the way of privileges and professional standing to those possessing it.

THE NEUROLOGIST'S ART.

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Knowledge is an excellent drug.—Montaigne.

There is a widespread belief that the recognition, interpretation and treatment of diseases of the nervous system offer peculiar obstacles, and that many of them are entirely unamenable to therapeutic measures. Now and then it comes to the ear of the neurologist that when he has made the diagnosis his usefulness ends. It is often said, half in jest but more in earnest, "To what end is all your diagnostic acumen and your skill in differentiation when your prognosis is so gloomy?"

The physician who has had wide experience in the treatment of nervous diseases knows that there is no

ground for these calumnious imputations. He knows that diseases of the nervous system, organic and functional, yield as readily to therapeutic measures as the majority of functional and organic diseases. He knows that if the same care, perseverance and skill are brought to the patient suffering from nervous disease that is bestowed on the victim of other and comparable bodily diseases that the results of treatment will be quite as satisfactory.

NERVOUS DISEASES CONTRASTED WITH OTHER DISEASES.

To bring the truth of this home to those who have been burdened with the belief that neurological therapeutics is a myth and that the neurologist is therapeutically impotent, it is only necessary to contrast the results of the neurologist's work with that of the physician who devotes himself to internal medicine. How much does therapy avail in the curative treatment of any kind of hepatic cirrhosis? With what degree of confidence can one say to the sufferer from cholelithiasis after an operation for gallstones that medical treatment and régime will prevent the reformation of calculi? In what measure has the prognosis of the different forms of Bright's disease and of the various degenerative cardiopathies been altered by therapy in the last generation? Are we more successful in combating gout, arthritis deformans and psoriasis than were our forefathers? These are not the interrogations of one who has been made morbidly sensitive by the imputations that are sometimes cast upon the branch of the therapeutic art that he has espoused, but a simple catechism to show that the neurological therapist has as much right to be optimistic as has his brother practitioner. That there are some diseases of the nervous system that are quite beyond the reach of all therapeutic measures everyone must admit. Such are general paresis, syringomyelia and paralysis agitans, but these are uncommon ailments and they constitute an extremely small proportion of the diseases that come within the neurologist's scope. Nor should the incurability of such diseases make our attitude toward them one of complete despair and therefore unworthy the effort of seeking for something in nature or in art that will successfully cope with them. One must pursue the search for an adequate remedy just as assiduously as he does for means of combating infantile diabetes, pseudo-leukemia, Addison's disease, pemphigus or any of the other diseases that still resist treatment. Face to face with any of these diseases there are few who can reconcile it with their consciences and their sense of duty to fold their hands and do nothing. That there are some who do this I know, but they do not accord with my own conception of the best type of physician.

The study of medicine as an abstract science has done much to give it the high position that it holds amongst the sciences, and such study should be encouraged, but the duty of the general practitioner is the treatment of disease. Because a disease has been found in his inherited or acquired experience, to pursue its course to a fatal end, there is no valid reason why he should not bend every effort to the determination of means that shall shape its course otherwise. In this way alone the value of thyroid feeding in myxedema, arsenic in leukemia and quinin in malaria was determined.

The attitude of great neurologists at the zenith of their career toward therapeutic possibilities has always seemed to me particularly inspiring and I recall the closing words of an address on neurological therapeutics a few years ago by Sir William Gowers: "I have been surprised at the amount of good that can be done in

affections commonly looked upon as intractable—relief, arrest, restoration. With each successive year's experience it seems to me greater and more distinct and to elicit more gratitude from the patients to whom it is applied."

THE NEUROLOGIST'S ART.

Does the physician especially trained in the recognition of nervous disease enjoy any special privileges which lead to such conclusions? I think not. Wherein, then, lies the neurologist's art?

1. In recognizing that the vast majority of diseases that he encounters can be influenced by treatment.
2. In having in his mind, when face to face with disease whose course he desires to influence favorably, a clear picture of the pathological process constituting the basis of the disease.
3. In appreciating that the successful treatment of nervous diseases requires the most scrupulous attention to detail in the application of measures that experience has shown to be of value.
4. In utilizing judgment and skill in the selection and application of measures that have been found useful, empirically and experimentally.
5. And finally, in realizing from the outset that a disease or disturbance of function which is either the expression of a prenatal defect, or of many years' duration can not be overcome in a few weeks, or even a few months of treatment even though the hand that administers it be both masterful and magical.

You will remark that nothing is said of a knowledge of human character, of the possession of tact and an unlimited fund of sympathy, of personal determination tempered with a full recognition of human limitations—these constitute the neurologist's endowment, not his art.

THE CURABILITY OF NERVOUS DISEASES.

To prove the first proposition, viz., that the majority of diseases encountered by the neurologist are susceptible to treatment that will cause cessation, amelioration or cure of the disease process, it might be necessary, if my auditors were hostile to the acceptance of this proposition, to cite individual cases, and numbers of them, but this being not the case it is necessary only to state the proposition and to reiterate that the treatment of diseases of the nervous system is no more the cultivation of a barren acre than the treatment of disease of other systems of the body.

Failure to conform to the tenets of the second proposition, i. e., to have in mind a clear picture of the pathological process which one wishes to overcome is responsible for many failures in the treatment of nervous diseases and for the unscientific way in which such treatment is often instituted and carried out. In no other way than conforming to it can one gain a clear conception of the limitations put upon one's efforts by nature. For instance, in the treatment of one of the common organic diseases of the nervous system, locomotor ataxia, one can not possibly conceive of the usefulness of galvanic electricity to the spine, the administration of strychnin, the utility of the system of exercises and mental gymnastics known as the Fraenkel movements unless he knows that the anatomical basis of the disease is a primary, slowly progressing decay of the posterior spinal roots beginning in that segment of their distribution which is between the spinal ganglia and the posterior columns of the cord and extending peripherally and centrally, but particularly in the latter direction until finally their intraspinal representation is quite wiped

out, constituting so-called sclerosis of the posterior columns. If it is not recognized that this process is primary, one may be tempted to employ measures that might be supposed to influence the process to which it is secondary. Indeed, ergot was formerly given in this disease with the hope that it would, by exercising its physiological effects upon the blood vessels of the spinal cord, cause a lessening of the vascular condition to which the degeneration of the posterior columns was thought to be secondary. To-day we hold that ergot is injurious in the treatment of tabes. Mercury and the salts of iodine given in doses sufficient to act as an antisyphilitic are in the same category. Although four out of every five cases of tabes occur in persons who have had syphilis, and although there seems to be no doubt that tabes would practically cease to exist if syphilis could be wiped off the earth, still the morbid process constituting the disease has nothing of a syphilitic nature in its constitution, nor are there any evidences that there has been at any time in the course of the disease any pathological process which could in any way be construed as syphilitic. If the physician who encounters cases of tabes but rarely, and who can not therefore be very familiar with the disease practically were to have this in mind one would see less often tabic patients in whom symptoms of the disease had been accelerated by the vigorous administration of anti-syphilitics.

In what other way can the great importance of absolute rest, of the administration of medicines that contribute to it, and of the application of ice-bags to the spine in acute anterior poliomyelitis be conceived of than by having in mind a distinct picture of the exudative, destructive inflammation going on in very perishable structures, viz., the cells of the anterior horns of the spinal cord and which will run its course in a few days. Yet I venture to say that in comparatively few cases are these measures instituted. If they were the results I believe would be evidenced by milder sequelæ of the disease. The same may be said of the treatment of Sydenham's chorea. The majority of cases are treated by the administration of arsenic, quinin, antipyrin, or whatever so-called anti-choreic is in vogue at the time or is being puffed most in the journal that the practitioner reads. Yet that same practitioner would not treat a case of rheumatism by giving the salicylates alone without saying a word about the dietary, about the necessity for alkalinizing the excretions, for rest and retirement until the acute manifestations of the disease had passed. Chorea is a rheumatic, infectious disease of the blood which causes in turn a functional perversion of the cerebral cortex, principally the motor cortex. This perversion of function is manifested principally by the conspicuous symptom of the disease—dance movements. Rarely has the disease any organic basis, but when it has it consists of a slight encephalitis. The blood disease of which it is an epi-phenomenon results from infection just as rheumatism in the majority of instances is an infection due to divers but particular organisms as shown by the researches of Poynton and Paine,¹ Achalmé,² Riva,³ Apert and Triboulet,⁴ to mention no others, to be a self-limiting disease. The most important feature in the treatment of chorea is rest and if this can be secured medication is rarely necessary. In fact, whatever medicine is given is with a view of securing rest and of overcoming the impressions made upon the blood by the acute disease. For instance, exalgin, one of the

most reliable anti-choreics, owes its efficacy entirely to its capacity to cause motor sedation. It does not seem to me that further emphasis or illustration is needed to carry this point, but if there were we could cite no better illustration than the successful treatment of neurasthenia based on a conception of the pathogenesis of that neurosis.

DETAIL IN THE TREATMENT OF NERVOUS DISEASES.

More important than everything else in the successful treatment of nervous diseases is conformation to the principles of my third proposition, viz., that successful treatment requires the most scrupulous attention to details in the application of the measures that experience has shown to be of value. I venture to say that in nearly every instance in which the general practitioner fails to get as satisfactory results from the treatment of any nervous disease as the neurologist, the failure can be traced to neglect of this cardinal principle. If I have interpreted aright the impressions received from an extensive acquaintance and intercourse with general practitioners as represented by my classes in the New York Post-Graduate Medical School, the failure to get gratifying results in the treatment of even the commoner neuroses is directly due to the fact that they pin their faith to specifics—of which by the way there are none in neurology—and expect everything from the administration of medicine. A patient comes under treatment for epilepsy. In nine cases out of ten the physician contents himself, I fear, with writing a prescription for a mixture of the bromid salts and in giving some perfunctory directions concerning the diet, particularly the consumption of meat. The result in the vast majority, in fact practically in all cases, is most unsatisfactory to the patient and physician alike. How could it well be otherwise in a disease in which the moral and hygienic treatment, including diet, discipline, education, occupation and recreation, are of far greater importance than the medicinal treatment. It has been demonstrated again and again that in nearly every case of epilepsy the number of attacks can be reduced one-half by conformation to these requirements. Whereas, if they are neglected and the bromids alone are relied upon, no such results follow.

In the same neurosis how often is care taken to determine the dose of the one real anti-epileptic drug, the salts of bromine? It is quite impossible to say what the dose of a bromid salt should be before considerable experimentation is made. There is no more dosage of bromid according to weights and measures than there is of alcohol for a patient with typhoid fever. The dose is the amount the patient can dispose of. For one patient it may be a scruple twice a day, for another it may be a dram or two drams; it is necessary to make an individual study of each case. It is as ridiculous to say that the dose of bromid for an epileptic is 20 grains three or four times a day as to say that the dose of quinin for a patient with malaria is 5 grains three or four times a day.

If what I have been saying about the necessity for precision and particularization is true for the treatment of epilepsy it is much more true for the treatment of neurasthenia, hysteria, sciatica, tic douloureux and a number of other functional diseases, particularly those which consist in, and depend upon primary alterations in the molecular nutrition of the nerve elements, manifested by disturbance of their function, either transient, or so persistent as to imply alteration of structure, i. e., the functional and nutritional diseases.

1. Lancet, Sept. 22 and 29, 1900.

2. Annales de l'Institut Pasteur, 1897.

3. Centralblatt f. Innere Med., 1897, p. 825.

4. Comptes rend. Soc. de Biol., 1898, vol v, p. 128.

Is it probable that so many cases of sciatica would become chronic, and so many victims of this disease be incapacitated if the same care was meted out to them when they are acutely ill as they would receive were they ill of pneumonia? Here again the attitude of the practitioner often conveys the absurd belief that there is some specific called the salicylates, gaultheria, turpentine, aconitin, gelsemium or what not that will battle with this disease of divers and multitudinous causation and hurl the diseased nerve, sheath, or functionally perverted fibers back to health. Is this not an appalling absurdity? It is like treating all cases of lameness by fitting each one out with boots for flat feet and expecting recovery. One out of twenty perhaps will recover, for that may be the proportion of lameness that is due to flatfoot, but the other nineteen must go elsewhere for relief. The case of the patient suffering from sciatica is exactly a parallel one. Particularization is the first requisite in the treatment, then precision in the application of the particular indication for treatment.

The necessity of attention to detail in the successful treatment of nervous disease is never so apparent as in the treatment of that mysterious disease which we call neurasthenia and which consists in an acquired, or an inherited and acquired enfeeblement of all the nerve centers, the clinical picture varying as one set or another of such centers manifest the weakness most conspicuously. In one case the emotional side of the individual's make-up is most upset, in another the mental side, in a third the spinal centers, sometimes the sympathetic centers, but usually features of all these appear in the clinical picture, which is too familiar to you all to necessitate a verbalsketch. It is a species of disease that causes as much mental and physical misery as one can readily imagine and to encompass its cure, deep study, careful thought, tact, perseverance and untiring care are required. I suppose that there are few diseases that the rank and file of practitioners treat with less satisfaction. And yet, save in the rudimentary forms, that is to say, in the forms founded on an inherited disequilibrium of the nerve centers occurring early in life as an expression of this prenatal deficiency, and not the variety dependent upon exhaustion, intoxication and stress, it is not a difficult neurosis to cure if one attacks it with the same determination and treats it with the same scrupulous care and watchfulness that one gives an attack of typhoid fever or of gout.

MERIT OF THE REST TREATMENT—EFFICACY OF DRUGS.

It is in such care that the merit in great part of the so-called rest treatment, properly carried out, lies. Mere drugging is not sufficient. To treat such a case satisfactorily one must use all those non-medicinal agents, of which we shall speak further on, that make for the elimination of injurious products from the system, for constructive metabolism, and for the production of neural energy and functional equilibrium. The most that we can expect drugs to do in such a case is to aid in overcoming contributory causes of the disease, such as auto-intoxication, and to assist the secretions and the excretions. Drugs do not cause or even assist materially constructive metabolism, the one all-important element in the restoration of health, but massage, hydriatics, rest, food, exercise and mental suggestion do. The use of these in systematic fashion, according to rule and method, subject to variation for the individual, not in a haphazard and desultory fashion cures them all unless the condition is so ancient that structural change which knows no restitution has taken place. The failures that result when such treatment is essayed are more

often to be laid at the door of the patient than of the physician, for in my own experience these are the cases in which treatment has not been thoroughly tested. I have rarely had impressed upon me so strongly as in a recent experience the apparent antipathy which some of us have to the necessity of conforming to details in the treatment of cases in which the results of assiduous treatment do not seem to be readily apparent. We all know what a sad picture the patient with the remains of anterior poliomyelitis presents. Everyone who has treated many of these cases believes that persistent treatment contributes a little to the restoration of function and the preservation of some of the muscular fibers in the atrophying part. Every little gained counts so much. I saw in the early part of the present season a child 4 years old who had had, nine months before, a mild attack of anterior poliomyelitis which had as a result an atrophied, paralyzed left leg with compensatory deformity in the right foot. She was put under careful treatment consisting of daily intramuscular injections of nitrate of strychnin beginning with 1/100 grain and increased up to 1/20 grain, massage, as much resistance exercises as possible, faradic electricity and local warmth by means of flannel covering of the leg during the day and repeated artificial warming and dry heat at night. At the same time she was sent to an orthopedic surgeon who fitted her with braces. In six weeks there was very perceptible improvement. I wrote the family physician (who by the way had not sent the patient to me) telling him what I had done and expressing a hope that he would see fit to carry out some such treatment when the child returned home, as it had been shown to be of such service. Fearing that the dose of strychnin might seem to him rather large I said that 1/40 grain seemed to me about the proper dose for him to give. A few days ago I got a letter from the mother of the patient saying that the doctor told her that he could not find it in his heart to kill her child with strychnin as I had advised him, that he would give her a pill of 1/100 grain and that she could buy a battery and use it herself, and that the child "would grow out of it." That represents a keen perception of the necessity for detail in the treatment of nervous diseases and a fine effort to conform to it. I am sorry to say that I could recount a number of similar experiences.

THE USE OF NON-MEDICINAL MEASURES IN TREATING NERVOUS DISEASES.

Skill in the selection and application of measures that have been shown experimentally or empirically to be serviceable in the treatment of nervous disease is a large part of the neurologist's art. These measures include not only drugs but massage, electricity, the external use of water, mental suggestion, rest and occupation, exercise, vibration and a number of other means. I am a believer in the efficacy of drugs and I await hopefully and confidently the discovery of means to combat all the ills that man suffers, even though he be not heir to them. I believe that Nature provides an antidote, if it can be discovered, for every ill that art inflicts and that the highest known form of evolution should have its final transformation at three-score years and ten into another form of energy by a process of natural decay and not be disease. While anticipating this discovery and assisting in the search we must do the best we can with the means at hand. Drugs constitute one of these means. The measures enumerated above constitute far more important ones and, in my experience, it is a working familiarity with

them that the general practitioner often lacks and not skill in the use of drugs. Therefore I shall devote my attention to a brief consideration of some of these measures. I appreciate fully that nothing particular can be said of them in an address of this scope.

THE THERAPEUTIC VALUE OF ELECTRICITY.

Two of the most useful measures in the treatment of nervous diseases in my experience are massage and hydriatics: two of the least useful are electricity and hypnotism. Many hold the reverse of this. But they base their opinions, I fear, on the frequently repeated statements of a few who never offer satisfactory substantiation of their statements. I am far from denying the therapeutic value of electricity in the treatment of nervous diseases. Its value in facilitating restoration of integrity and function of inflamed nerves, such as in peripheral facial paralysis, lead palsy and other forms of neuritis, can not be gainsaid. It is also of some service as a pain reliever and an excitant of sluggish muscles. Neurological therapeutics would be deprived of much if electricity were taken from it. That which I am endeavoring to maintain here is that electricity is not a curative agent of great importance and compared with hydriatics and massage it is of small value. The best proof of this I think is that neurologists whom I have seen at work and with whom I have been at some pains to talk, use it very little as a therapeutic measure. As an aid to diagnosis and as a means of estimating the prognosis of diseases of the nerves and muscles it is of great importance. That this view is not shared by general practitioners is amply testified to by the batteries in various stages of decrepitude that can be unearthed in their offices. It would be interesting indeed to learn if they, as the supporters of the battery-making industry, can show results in the shape of amelioration or cure of disease to justify the expenditure. When I talk with general practitioners on this score they usually inform me that although they have one or more batteries (which, as a rule, are not in working order) and that they have used electricity frequently they do not feel that they have the skill in applying it or the requisite experience in its use to justify them in expressing an opinion. I feel that they are too modest because the only skill which is needed is a knowledge of the elementary principles of electricity as a force and which is taught in every high school. Professors of the art do not know more. It requires no more skill to give electricity therapeutically than it does to give digitalis. The skill is displayed in knowing when to use it and what to expect from it. The former is taught in every text-book on medicine and nervous diseases, the latter I am making an effort to put before you.

THE FIELD OF HYPNOTISM.

Hypnotism is another agency used in the treatment of nervous diseases that could be spared and never missed. Yet that which is at the basis of hypnotism and the entire superstructure around which it has been built is the very essence of the neurologist's art, as it is of every therapist. That something which makes the real physician a whole sun of illumination and a Gibraltar of hope to the despairing invalid is the subjective condition of the patient which markedly favors the operation of anything that the physician may do or say. Thus comes the immediate mending that follows reassurance, the uplifting that hangs on an assuring grip or an encouraging glance. It is this state of favorable subjectivity that so-called hypnotism causes. Purposeful suggestion accomplishes that which the physician does *secundem artem*. In so far as we are con-

cerned as therapists there is nothing in hypnotism that transcends ordinary human understanding or that necessitates flight to the occult or mysterious for its comprehension. Yet I venture to say that nine persons out of ten do not take this view of it. I would not be understood as saying that the phenomena of hypnosis from a physiological and a psychological standpoint are fully comprehended, but they are quite as well understood as that of normal sleep, and who thinks nowadays of standing half in wonder, half in awe, before a sleeper, even though the sleep has come to him while his attention is fixed upon one who is laboring to save his soul and telling him about it in a droning monotonous monologue. Yet this is the feature of the hypnotic performance that fills the spectator with awe, and perhaps with a little of the feeling that the person who can accomplish it must be more god than man. I do not tremble for my reputation as a prophet when I say that the day of the hypnotist—i. e., one who allows it to be believed that he is endowed with a peculiar and supernatural possession and whose manner of using it, weird and bizarre, can contribute only to such a belief—has passed. The memory of it, however, remains and many unfortunately refuse to avail themselves of the aid that it offers in the treatment of both functional and organic nervous diseases because of the stench of charlatanism that still clings to it. One word more on this subject. I have many inquiries, personal and by letter, as to where the art of hypnotism may be acquired. You have all seen the pictures and the addresses of those "professors" who are willing to teach it for a consideration. Mental suggestion as a therapeutic aid can be acquired just as a well-modulated voice, a pleasing address, an assuring expression, or any other element of a successful "bedside manner," but the more it is artificial and borrowed from another the more worthless and useless it is. The physician who is able to gain the respect and the affection of his patient will never know the need of hypnotism, and if Nature has not endowed him with the qualities to do this he might as well pray to St. Anthony for them as to hope to learn from a professor.

THE USE OF WATER: AN ESTIMATE OF ITS VALUE.

Does anyone deny that water of different degrees of temperature applied to the surface of the body is beneficial in almost every disease attended with lowered vitality and impaired nutrition? I think not. Then why is it not more universally used? When I ask this question of my friend the family doctor he usually responds "because I haven't got the apparatus and because I do not understand the technique of its application." Although I tell him that to obtain most of its beneficial effects scarcely any apparatus is necessary, and that the technique can be acquired by a little experimentation upon himself and his patients, I fear that his future conduct does not convey flattering testimonial to belief in my veracity. Still I go on trying to promulgate the view hoping, like the patent medicine vendor, if I say it often enough and conspicuously enough that someone will believe it. If one can have the conveniences of a fully equipped hydriatic establishment or the services of a nurse who has had much experience in giving douches, packs, ablutions and tubbings, it is very agreeable. It is also very agreeable to have some one to make your night calls. But because you have not this assistance the patient does not have to lie in suffering all night or the woman complete her labor unattended. I maintain that the most successful application of water in the treatment of nervous diseases is an art that can be ac-

quired only by experience. But in this does it differ from any other branch of therapeutics? Not at all, and I know of no other way of acquiring the experience than by going hard at it. With a number of treatises on the subject in every language, with full consideration of the subject of hyriatics in every book on nervous diseases and therapeutics the earnest seeker after knowledge should have little trouble in possessing himself of all the experience that an adept can hand over to a novice.

MASSAGE AND THE OPERATOR.

Massage does not occupy a very exalted place in the therapeutics of nervous diseases, nor does it have, needless to say, any specific action in counteracting pathological states of this system. But in many diseases it is one of the most valuable agencies that we possess. For instance, in the treatment of hemiplegia there is nothing that compares with it. It is one of the indispensable auxiliaries in the treatment of neurasthenia. It can rarely if ever be dispensed with in the treatment of neuritis, single or multiple, anterior poliomyelitis, or certain forms of progressive muscular atrophy. Indeed it is one of the most important of the non-medical measures: hyriatics, electricity, exercise and dietetics. The fact that it requires no apparatus or paraphernalia for its use and that any intelligent person can soon acquire the dextral proficiency, providing he has the strength necessary for its application, is one of its leading recommendations. The professional masseur, and his feminine counterpart who has so often used it as a mantle to pander to vice are largely responsible for the disrepute of massage. We may congratulate ourselves that we are not responsible for its unmerited disuse as we are, I am afraid, for hydrotherapy.

A professional masseur who endeavors to impress his patients with his superior knowledge, resorting to claptrap means for this purpose, may be a good rubber but he is a most undesirable person to have about a nervous patient and not infrequently has an unwholesome effect which offsets the benefit that follows the rubbing. The mode of applying massage is not all-important, as the graduates in the art maintain that it is, although naturally there is a right way and a wrong way. If one has in mind what he wishes to accomplish by massage he will have no difficulty in applying it himself or teaching any fairly intelligent person of strength how to use it. Its usefulness is restricted to quickening the lymph and blood circulation, to stimulating tissue metamorphosis, secretions and excretions and combined with passive motion to the prevention of adhesions. To accomplish these one makes use of stroking, frictions, kneading and tapping and it depends entirely on what one wishes to accomplish which of these he will use. My message to you particularly is, however, that massage is not a mystery and that although men and women are still being humbugged into paying large sums of money to learn it, and dishonest men and knaves are quacking with it, it is still a simple mechanical process whose use enables your patient to consume and assimilate the enormous quantities of food required to build up bodily tissues and repair bodily strength, which is the basis of cure in almost all cases of chronic invalidism, especially, of the functional variety.

THE PATIENT FIRST; THEN THE DISEASE. WORKING OVER THE PATIENT.

I have had a great deal to say about the individualization of therapeutic procedures because I think it is too much neglected. At the same time I have not forgotten that after all it is for the individual patient that

we should reserve our keenest discernments. Scarcely any two cases of functional nervous disease can be treated in the same way. This is particularly true of neurasthenia which forms such a preponderance of the functional nervous ailments as seen by the general practitioner. Although there are certain requirements that must be conformed to in every case, such as getting the patient out of the immediate environment in which she has developed her symptoms or had her evil habits fostered by over-zealous relatives and friends (which by the way does not necessarily mean sending her away, except perhaps to a neighboring boarding house or hotel), and the selection of a suitable nurse who is able or can learn how to give massage and hydrotherapy, even the method of accomplishing these and carrying them out is subject to much variation. But no two cases can be treated in exactly the same way, even with the non-medical therapeutic measures. And to the extent of determining just what means must be adopted to bring about desired results a certain amount of experimentation must be made with each patient. It does not contribute to the patient's comfort or well-being to share in this knowledge. For instance, one patient stands every form of hydrotherapy most indifferently. Another can not abide electricity, and so on. This being the case, one easily sees what would result if every patient were subjected to routine treatment without any variation. It is this study of the individual that enables the physician to interpret the case psychologically just as an examination and consideration of his various tissues and organs allows him to interpret it physiologically.

These fragmentary remarks would ill-represent the writer's attitude toward the treatment of disease if something were not said of that all-important element in neurological therapeutics—working over one's patient; working untiringly, hopefully, full of confidence that reward will be vouchsafed in the shape of partial or complete restoration, even though manifestations of it be despairingly delayed. This was the art of that great master of therapeutics, the younger Seguin, to whose memory I respectfully make my homage. One could not watch him toil painstakingly with a case of peripheral facial paralysis, of epilepsy or of Grave's disease, day by day and month by month without becoming possessed of the belief that here was one at work who knew wherewith he toiled and whereof he builded. The success that rewarded him in the treatment of nervous disease justified his labor and his determination, and the lesson should not be lost upon us. The physician who thinks to balance the sympathetic nervous system manifesting the symptom complex of angio-neurotic edema or erythromelalgia with a few doses of strychnin or by regulating the functions of the alimentary canal, deserves commiseration, for life has in store for him but a succession of disappointments. The individual who believes that any disease save the self-limited diseases, can be dislodged after a few more or less desultory encounters, as the devil was dislodged in medieval times by priestly exorcisms, should be labored with as patiently as the missionary labors with the heathen, that he may see the error of his ways, and come into the fold of the righteous.

OUR LIMITATIONS.

Finally, a word must be said concerning the importance of our 5th proposition, viz.: Realization that a disease which is the expression of a prenatal defect, or of many years' development can not be overcome in a few

days or weeks. This I am sure is generally conceded, but I am not sure that our conduct of the cases is always in keeping with our convictions. It is often necessary for the patient to appreciate it as keenly as the physician. A patient seeks relief from the symptoms of that mysterious neurosis known as exophthalmic goiter or Grave's disease. She may complain only of palpitation and a feeling of agitation, symptoms that seem to her trifling, and she expects relief from them as she would from cough or headache. The fact that she has a nervous organization that is congenitally unstable and that for years she has been poisoned by depraved secretions of the thyroid gland is entirely unknown to her, but she must in some way be made to appreciate it before she will take kindly to the tiresomeness of treatment. How else will she be reconciled to lying on her back for from one to three months suffering what seems to her the cruelties of the rest treatment with its concomitants of overfeeding, massage and electricity. But if she can be made to appreciate what her disease stands for and the natural way out of it how much easier it is for us to assist Nature in restoring her to health. This is not only true of Grave's disease but of almost every disease of the nervous system.

Another very necessary thing for us to do in our battle with nervous disease is to recognize limitations. The real nerve tissue, the parenchyma of the nervous system, the nerve unit or the neuron once destroyed is never regenerated. In this respect it does not differ from other specialized tissue cells. No one expects new liver cells to grow or new muscle cells to spring up to take the place of old. Nerve cells may, however, undergo much integral change before they decide to give up the ghost, and inherent and functional restitution occurs in nerve tissue that has been the seat of very decided alteration. Although our hands are not infrequently tied from the start in our encounter with nervous diseases, by virtue of the death of neurons, this should be by no means the signal for despair and retreat. We may find plenty of opportunity in saving other neurons from decay and in delaying the process in those that are fated to die. Let us take, for instance, locomotor ataxia. A man comes to us when he is 40 years old with symptoms that indicate the beginning of the disease. It is almost absolutely necessary that he should know the nature of his disease in order that he may avoid experiences that are bound to be injurious, and that he may cooperate with the physician in delaying the disease process. Although the outcome of tabes has not been altered by our present-day therapeutic resources it is beyond question that its course is materially delayed by treatment. So that we may say to our patient with a great deal of confidence that from 15 to 20 years of usefulness may still be his which will bring him up to an age when, if he has read his philosophy aright, he should be able to contemplate transformation with some resignation. During this period, which in many cases is much more protracted, he has not only time to put his house in order but to provide for his dependants. Treatment that can accomplish this can not be passed over lightly, nor is the making of a diagnosis of tabes when this potency is held in reserve quite equivalent to the signing of his death-warrant in the common acceptance of that term.

After all has been said the neurologist's art is but the conspicuous characteristic of every skilful physician, who believes in the curability of disease and who feels that he is but an agent shaping the course through which Nature effects her cures.

32 West 38th Street.

AN ANALYSIS OF FIFTY-TWO CASES OF TETANUS FOLLOWING VACCINIA.

WITH REFERENCE TO THE SOURCE OF INFECTION, 1839-1902.*

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(Concluded from p. 1152.)

In order to study the question in a judicial manner, and to weigh the evidence for and against an infection carried by the vaccine virus, several points must at once be considered, and in their association and grouping rather than separately. Among these are to be included:

1. The manner of preparation of the virus, the suddenness and proportions of the demand for the same, the care used in testing such virus before being placed upon the market, and finally, the bacteriologic and inoculation experiments that have been possible either before or after infection.

2. The method of vaccination; whether executed in an aseptic fashion, and with such precautions as to prevent unnecessary exposure of the wound during and after the operation.

3. The after-care of the wound, up to and after the time of perfect healing and the dressing employed.

4. The incubation period of the tetanus, always allowing (with a view to thoroughness in our investigation), until there is reason to think otherwise, that the infection has been introduced at the time of vaccination.

5. The clinical symptoms, whether severe or mild; the grouping of the cases as to locality and frequency of occurrence; and the outcome, whether fatal or benign.

6. Any possible and probable source of infection other than the vaccine wound and the vaccine virus.

In considering these questions we must admit in advance that the tendency has been to lay the credit for the tetanus at the door of the vaccine virus, in spite of an overwhelming array of circumstantial evidence that the infection may have been by other agencies. In presenting this mass of evidence for intelligent study, therefore, it has been thought advisable to tabulate the several details under discussion in the accompanying diagram, opposite the number and date of vaccination of each case.

With regard to the first point, the manner and cleanliness of preparation of the virus, it will be necessary to consider three periods in the history of vaccination: that period prior to the knowledge of the infectious nature of tetanus; that subsequent to this discovery, but during which human virus was largely in use; and, that recent period in which bovine virus has been mainly employed.

During the period prior to the knowledge of the infectious nature of the disease (Nicolaier-Rosenbach, 1885-6) reference to our table will show that we have recorded seven cases, two of which (2 and 3) were not certainly, though probably, tetanus. Vaccine material at this time (1839-1885) was largely that obtained from the arm of a human being. As early as 1850 this was at times diluted with glycerin. In all but one of the cases included in this period, as far as could be ascertained at all, the virus used was human lymph. Only one of the seven cases was known to have been vaccinated with "bovine quill" virus. Case 9 followed shortly after and was vaccinated by the "arm to arm" method as before, from a child that was healthy before and after the use of its lymph.

* Read at a meeting of the Philadelphia County Medical Society, April 23, 1902.

During the second period, or that subsequent to the discovery of the infectious nature of tetanus, but during which human lymph and crusts were still in use, we have in this country records of no cases; but in England (where humanized virus to-day is freely in use) we have Case 9, and a long series of other cases that may or may not have been tetanus, of which a list is appended. All of these were noted in the report of the Royal Commission on Vaccination appointed by the English Parliament in 1889, and many bear the criticism of the Commission that the attending physician was not satisfied as to the nature of the case. (Appendix ix, part i-ii.)

CASE 1.—Female, 6 months old. Arm to arm. Vesicles opened to abstract lymph. None of this used. No other history. Death on seventh day after vaccination from convulsions.

CASE 2.—Male, 8 weeks. Death from convulsions three weeks after vaccination. Virus not known.

CASE 3.—Female, 4 months old. Convulsions on the 18th, and death on the 20th day. No redness or swelling of arm. Arm to arm vaccination.

CASE 5.—Female, age unknown, arm to arm, symptoms of meningitis; greenish scab, poulticed; bronchitis, convulsions 11 days after vaccination, and death.

CASE 6.—Male, age unknown, arm to arm, no surrounding inflammation. Died five days after vaccination. Refused food for two days before death, convulsions.

CASE 7.—E. P., female, age unknown. Child teething at same time. Several convulsions prior to one that caused death.

CASE 8.—T. R., 4 months, female, tube lymph. Eleven days after vaccination death occurred, mouth drawn to one side, unable to make any effort at swallowing, condition of arm satisfactory.

CASE 10.—Vid. Case 9 in above series. Undoubted case of tetanus.

CASE 13.—Child, sex and age not given, tube lymph, from another child. On 8th day slight vomiting and diarrhea. Next day convulsions and death. Vaccination normal.

CASE 23.—Female, 3 months; cellulitis of arm 9 days after vaccination. Lymph from child used. Vesicles became rubbed and red and were poulticed. Swelling on the 14th day. Convulsions and death. A padded shield had been used.

CASE 47.—Female, 4 months, arm to arm. Two months after vaccination convulsions and death. Vesicles had been pricked, and arm inflamed. Large ulcer at site of three vesicles.

CASE 51.—Male, tube lymph from child. Normal vaccination until the 15th day. Bread and milk poultices. Vesicles over the face, hands, extremities, and mucous membranes. Convulsions on the 35th day; death on the 37th day.

CASE 54.—Male, 2 months, arm to arm, vaccination normal to 9th day, then arm red and swollen. Child refused breast. Brawny swelling to shoulder. Convulsions, and death on the 17th day.

CASE 55.—Female, age unknown. Arm to arm. On the second day convulsions lasting 6 days, and then death. Two other children vaccinated at same time did well. Hare-lip needle used, point tarnished "but clean." Ivory spatula used for rubbing on lymph.

CASE 64.—Female, 5 months. Arm to arm. Normal vaccination until 18th day, then neither redness nor swelling. Convulsions on 24th day. Death in 24 hours.

CASE 96.—Male, 12 months, convulsions one month after vaccination, and death.

CASE 99.—Male, 3 months, calf lymph, vesicles pricked on 8th day. On 11th day vaccination normal, bronchopneumonia. Later convulsions and death on the 19th day. Eczema or intertrigo over body for 6 days.

CASE 102.—Male, 3 months, lymph unknown. On 27th day convulsions, and died on following day. Vaccination had healed. No other history.

CASE 109.—Male, 3 months, humanized lymph; erysipelas on 21st day. AgNO₃ applied until raw and sore. On 27th day convulsions and death. Shield used that had been previously in use.

CASE 117.—Male, 3 months. Lymph from child, 8th day erysipelas, inflammation from shoulder to elbow, then to both arms, trunk and extremities. Scabs separated, leaving deep sores. Convulsions, and death on the 26th day.

CASE 127.—Female, 9 months, calf lymph, one other vaccination from same tube normal. During 6th week scabs fell off naturally. Swelling then began at three points. Twelfth week abscess at this point. Nineteenth week abscess in axilla. Twentieth week, and previously, violent convulsions, and death. Tube of lymph had been opened the day before.

CASE 133.—Male, 5 months. Child lymph. During second week vaccination became inflamed, with abscess in axilla. Convulsive attack and death on the 32d day.

CASE 144.—Female, 6 months. Calf lymph. Vesicles pricked on 8th day. Next day child sick, and on 16th day gangrene of the arm. Poultice applied. Convulsions and death on the 20th day.

CASE 158.—Female, 9 months. Calf lymph. Another child, vaccinated with the same tube, normal. Ninth day convulsions and death. Lancet had point broken and was slightly rusted when inspected.

CASE 168.—Female, age unknown. Virus from child. Two children vaccinated from this patient and both did well. On 8th day vesicles pricked, on 9th day redness and swelling, vaccination dressed with fresh cream. Operator "known not to be careful in cleansing his lancet." Erysipelas prevalent. Yard filthy. Convulsions and death.

CASE 174.—Female, 5 months. Calf lymph on points. On 9th day vaccination became red and inflamed from shoulder to elbow. Profuse postvaccinal eruption over buttocks and knees. Convulsions and death on 30th day. Vaccinator used sewing needle, and had attended an erysipelatous patient that day.

CASE 177.—Male, 2 months. Arm to arm, from child who had normal vaccination. On 9th day arm swelled from shoulder to

wrist, became red and angry, then blistered, and became black. On the 12th day, convulsions and death.

CASE 181.—Female, 7 months. Lymph from calf. One other child vaccinated with the same tube had a normal vaccinia. After one month the scars had healed. Eczema of face, scalp and neck. Four months from vaccination convulsion and death.

CASE 183.—Male, 7 months. Arm to arm, and vaccination until scabs knocked off. Began to "take food badly and directly after vaccination." Twenty-four days later convulsions and death. Child had crack over ear; general surroundings filthy, dung-heap beneath window. Two others vaccinated from the same lymph had normal processes.

CASE 187.—Male, 19 years. Arm to arm. Four others vaccinated at the same time and all did well. No dressing on arm. Nine days after vaccination, vomiting, prostration, and double convergent strabismus. On 25th day drowsiness, tenderness of scalp, spasm of right arm. Thirtieth day diplopia, convulsions, death. Diagnosis made of cerebral tumor. No autopsy.

CASE 193.—Male, 5 weeks, calf lymph. On 18th day large ulcer at vaccination site. Offensive discharge. Twenty-third day failed to take its food. Had three convulsions and died a few hours later. Child very dirty and vaselin used on the wound.

CASE 195.—Female, age unknown. Five vaccinated from same arm, and all normal. On the 8th day normal. On the 10th redness over neck and back to the other arm. Parts hard and blisters formed (erysipelas?). Child refused food, had convulsions, and died on the 25th day. Poultice used on the 9th day. Closets and gutters in house unsatisfactory.

CASE 199.—Female, 4 months. Tube lymph from child; vaccination normal until the end of the second week. Then redness, swelling of arm to fingers, and of trunk and extremities. No blisters or sores. Vaccinator known to be unsatisfactory in his methods. Erysipelas prevalent in neighborhood.

Of the above, Cases 8, 22, 117, 177, 183, 187, and 195 were very probably, and all were possibly, examples of tetanus, though they can only be used as evidence of questionable value in this regard. They have, however, an important bearing upon the point next to be considered, i. e., that of the method of vaccination, preparation of the site, and the subsequent care of the wound. Many were admittedly vaccinated in a careless manner, and not one was properly cared for during the course of the vaccinia.

During the third period, or that recent time throughout which in this country bovine virus has been widely used, though in England and on the continent to a lesser extent, we find the great number of our cases; and it is with these that we will have mainly to deal. The fact that human virus, carried directly from one arm to another, has undoubtedly caused a large number of severe ulcers, following which tetanus has developed, will be referred to at a later time, and employed as one of the links in a chain of evidence that grows in length as the study proceeds.

Vaccine virus of former years must then, except for the recent period extending to to-day, be looked upon as mainly of the human variety, and therefore free from any infection other than that already in the system of the child or upon its skin surface. Further than the cleansing of the arm and the lancet (often this was dispensed with) there was no preparation of the virus or the patient, and only one form of virus was used. Only one conclusion is allowed therefore for this period: that the infection came from other sources than the lymph itself, and that abundant opportunity was offered for its transmission. Beginning with the Civil war, or thereabouts, bovine virus came gradually into use in this country, and with its employment the gradual organization of business enterprises to furnish large quantities in convenient forms. Undoubtedly for a long period this production was carried on in a more or less careless manner, especially when large armies were to be vaccinated in a short time. But strange to say, this period records far fewer cases of tetanus in the course of and following vaccinia than the more recent ones in which extreme care is supposedly employed. Our Civil war records, for example, mention not one case of so-called vaccine tetanus. It is not stated, however, and evidently has not been considered, that the cases of tetanus that occurred in the Union Army were in men every one of whom had been vaccinated more or less recently, and that many of

Case.	Locality.	Date of Vaccination.	Color, Age, Sex.	Virus Used, Place on Body.	Dressing Used at Time of Vaccination and Later.	Possible Means of Infection Other Than the Vaccine Virus.
1	Plantation near New Orleans.	July 31, 1839.	Adult negress.	Arm.	Presumably none.	No statement made except as to work in the fields as slave.
2	Lowell, Mass.	October, 1845.	White, 5 years.	Arm to arm.	" "	Vac. by mother with darning needle.
3	Lowell, Mass.	" "	White, 7 years.	Arm to arm.	" "	Vaccinated by mother with darning needle; same virus.
4	Southern part of U. S. A.	May 15, 1879.	White, male, 3 1/4.	Arm.	" "	Crust torn away; vaccinated by midwife; large ulcer formation.
5	Auburn, N. Y.	Jan. 6, 1882.	White, male, 9.	"Bovine-quill"; arm.	" "	Large ulcer, excavation, lymphangitis, etc.
6	Maryland.	Middle of January, 1882.	White, male, 40.	Arm.	" "	Extensive ulcer and surrounding inflammation.
7	Columbia, S. C.	Feb. 9, 1882.	Colored, male, 5.	Humanized virus; arm.	" "	Small ulcer "bathed in healthy pus" at site of vaccination.
8	Havana, Cuba	May 29, 1886.	White, male, 2.	" "	" "	Deep ulceration of the tissues.
9	England.	Sept. 10, 1889.	White, female, 2 months.	Arm to arm.	Red rags, ointment, poultice, shield. Bathed with oatmeal water.	Extensive slough, large ulcer; uncleanly dressing; case of tetanus in neighborhood.
10	Cuba	July 12, 1891.	Negro, male, 9 months.	" "	Presumably none.	Crawling constantly on hands and knees in dirt of yard.
11	Long Island.	Nov. 6, 1893.	White, female, 5 1/2.	Bovine virus, dry point; arm.	At first a sterile dressing; then rags and soiled vaseline.	Deep ulcer and uncleanliness in care of vaccine wound; aphthous stomatitis present.
12	Philadelphia.	Oct. 2, 1896.	White, female, 7.	"Fluid vaccine"; arm.	No dressing used at any time.	Deep ulcer; child played continually in stable adjoining house.
13	Philadelphia.	Oct. 3, 1896.	White, male, 8.	"Fluid vaccine"; arm.	No dressing used at any time.	Necrotic condition of tons. and urethra (B. Klebs-Löffler); large vac. ulcer.
14	Vaccinated in U. S. A.; died in Havana, Cuba.	1899; exact date not given.	White, male.	" "	Presumably none.	Exposure and carelessness of soldier's life.
15	United States.	July 17, 1899.	Colored, male, adult.	Glycerinated virus; arm.	Sterile gauze at beginning. No later statem't as to care.	Careless and generally uncleanly habits of soldier's life.
16	Brewster, N. Y.	October, 1899.	White, female, 10.	Glycerinated lymph.	Fresh lard applied 18 days after vaccination.	Lard used in form of dressing; deep ulcer.
17	Porto Rico.	—, 1900.	Child, native.	Dry point.	Asepsis in beginning; later no care as to dressing.	No history of wound obtainable.
18	Paris, Tenn.	Nov. 27, 1900.	White, female, 8.	Ivory point; arm.	Dressed with old quilt wadding until tetanus appeared.	No dressing; scab knocked off; then dressed with wadd'g from old quilt.
19	Kalamazoo, Mich.	Jan. 3, 1901.	White, female, 8.	Glycerinated lymph; arm.	Shield used until arm was dry; then no dressing.	Scab torn off; arm and shirt sleeve filthy at time tetanus developed.
20	Glasgow, Scotland	March 8, 1901.	White, female, 21.	"Calf's lymph"; leg.	Bunion plaster and strip of adhesive plaster.	Adhesive plaster not removed for 2 weeks; ulcer covered with greenish slough; poultices applied.
21	Burlington, Vt.	Oct. 2, 1901.	White, female, 12.	Dried point; arm.	No dressing for considerable portion of time.	Scab removed; wound then dressed at home; large ulcer.
22	Burlington, Vt.	October, 1901.	White, female, 12.	Dried point; arm.	No dressing for considerable portion of time.	Scab removed; extensive ulcer formation; wound dressed at home.
23	Suburbs of Philadelphia.	Oct. 9, 1901.	White, female, 11 months.	Glycerinated point; leg.	Celluloid perforated shield, adhesive strips.	Shield not removed until the 28th day and tetanus had developed; full of pus; child lived over stable.
24	Camden, N. J.	Oct. 12, 1901.	White, male, 7.	Glycerinated virus; arm.	No dressing.	Scab lost during play; fell on the ground and was then replaced on the wound.
25	Camden, N. J.	Oct. 14, 1901.	White, female, 6.	Dry point; arm.	Shield only.	Excessive discharge from large ulcer collected without removing shield.
26	Suburbs of Philadelphia.	Oct. 19, 1901.	White, female, 6.	Glycerinated points.	Celluloid shield only.	Child lived over stable; children had been throwing dirt at one another; gangrenous stomatitis.
27	Camden, N. J.	" " "	White, female, 11.	Glycerinated lymph; arm.	At first a shield; later no dressing but a rag.	Severe ulcer exposed to sleeve and atmosphere.
28	Bristol, Pa.	" " "	White, male, 11.	"Tube virus"; arm.	Bandaged with "cloths."	Severe ulcer; threw bandages on ground and replaced them on arm.
29	Camden, N. J.	About Oct. 1, 1901.	White, female, 7.	Dry point; arm.	Shield only; later an ointment and boiled rags.	Shield left in place for over 3 weeks; large, deep ulcer; flaxseed poultice, ointment and rag dressing.
30	" "	Oct. 21, 1901.	White, female, 8.	Glycerinated lymph; arm.	Papiermache shield.	Child known to have exhibited vac. to several pupils on way to school.
31	" "	Oct. 22, 1901.	White, male, 16.	Glycerinated lymph; arm.	Bunion plaster covered by adhesive plaster.	Shield not removed until tetanus developed, 9 days later; large ulcer.
32	" "	Oct. 23, 1901.	White, male, 11.	Glycerinated point; arm.	None.	Ulcer size of half dollar in which was matted a gray merino undershirt sleeve.
33	" "	Oct. 25, 1901.	White, male, 5.	Glycerinated virus; arm.	" "	Large ulcer at site of vaccination; boy lived within 15 feet of a stable.
34	" "	Oct. 26, 1901.	White, female, 8.	Glycerinated virus; arm.	" "	Severe ulcer at site of vaccination; open sore on lip.
35	" "	" " "	Colored, female, 9.	Glycerinated point; arm.	" "	Severe ulcer; home separated only by a door from a stable.
36	Philadelphia.	" " "	White, female, 4.	Glycerinated point; thigh.	" "	Large ulcer; boy played continually in lumber yard with the horses.
37	Atlantic City, N. J.	October, 1901.	White, male, 7.	Glycerinated virus; arm.	Shield for 3 days; then rag tied around arm.	Large ulcer and lymphangitis; large collection of pus in shield.
38	Bristol, Pa.	Nov. 3, 1901.	White, male, 12.	Glycerinated virus; arm.	Shield allowed to remain till filled with pus for days.	Scab lost on 22d day and rag worn from that time.
39	Brighton, N. J.	Nov. 4, 1901.	White, male, 10.	Glycerinated point; arm.	Shield not removed for 18 days; full of pus; rag then placed around arm.	Scab lost on 22d day; rag worn from that time.
40	Camden, N. J.	About Nov. 4, 1901.	White, female, 13.	Arm.	No dressing used until later; a rag; unclean surroundings.	Severe ulcer and surrounding inflammation.

Interval Between Vaccination and Tetanus.	Duration and Main Symptoms of the Tetanus.	Treatment.	Result.	REMARKS.
Over 2 weeks	trismus, rigidity, convulsive twitchings.	Large doses of opium.	Recovery	No dates given except that of first visit by physician. Cottmann: New Orleans Med. and Surg. Jour., May, 1855.
24 hours	convulsions, prostration.		Death.	Editor: Ohio Med. and Surg. Jour., Sept., 1848.
24 hours	prolonged convulsions and prostration; long convalescence.		Recovery	Loc. cit.
10 days	trismus, severe convulsions, risus sardonicus.		Death.	Ross: Southern Clinic, September, 1879.
10 days	trismus, severe convulsions, opisthotonos.	Morphia.	"	Many other severe ulcers from use of same lymph, but no other cases of tetanus. Dimon: St. Louis Courier of Med., April, 1882.
7 days	trismus, convulsions, risus sardonicus, opisthotonos and coma	Chloral, potass. bromid; lg. doses	"	Berkeley: Amer. Med. Jour., Oct. 1, 1882.
15 days	trismus, spasm of muscles marked.	Potass. bromid., ex. phys. fl., chloral	"	Bates: Transactions So. Car. Med. Association, 1882.
4 days		Chloral and laudanum, enemata.	"	Rijo: Cron. Medico-Quir. de la Habana, 1886, II.
3 days			"	Case of umbilical tetanus died shortly after in neighborhood; poultry and rabbits kept in yard next to door of house; bad surroundings. Report of Royal Commission, 1889-1897, Appendix IX.
32 hours	trismus, convulsions.		"	Surroundings and coverings all uncleanly and unhygienic. Ruiz: Cronica Medico-Quir. de la Habana, 1891, XVII.
5 days	marked trismus, risus sardonicus, opisthotonos, convulsions	Bromids and chloral, ice, chloroform.	"	Ulcer deep and full of pus; no dressing used for a short time; sponge used to cleanse wound, also rags; aphthous stomatitis present. Toms: Med. News, N. Y., Feb. 24, '94.
Over 1 month		Chloral and bromids.	Recovery	No care of wound at any time before tetanus developed. Stable adjoining house. Reported for first time by permission of Drs. Stengel and Kelly.
Antitoxin, calomel.			"	Reported for first time by permission of Dr. Stengel.
Death.			"	Patient volunteer in Spanish war; troops had little or no care; vaccination by wholesale. Report of Surg.-General U. S. A., June 30, 1900.
Less than 3 days	trismus, opisthotonos, convulsions.	Morphin, chloral	"	Loc. cit.
Reported for first time by permission of Drs. Stengel and Salmon.			"	Of about 1,000,000 vaccinations this one alone developed tetanus. No data obtainable. Reported for first time by permission of Deputy Surg.-Gen. Van R. Hoff.
Reported for first time by permission of Drs. Abernathy and Corum.			"	Reported for first time by permission of Dr. Rockwell.
5 days		Antitoxin, chloroform, morphin.	"	Only patient of a large number vaccinated on same day to develop tetanus. Drs. Findlay: Lancet, Feb. 22, 1902.
Over two months before recovery	trismus, twitchings, etc.	Large doses of chloral, potass. bromid.	Recovery	Child assisted in taking up potted plants while open ulcer was at seat of vaccination; cultures from earth in several places near her house gave pure growths of tetanus bacilli. Drs. Caverly and Beecher: Vermont Medical Monthly, Jan. 25, 1902.
Death.			"	Earth from numerous localities near child's home gave cultures of tetanus bacilli; these two were the only cases out of several thousand. Loc. cit.
Child slept in bed with father, who had charge of horses in stable below; sister also was vaccinated, with no untoward symptoms. Am. Med., Dec. 7, 1901. (Writer's case.)			"	Boy's brother vaccinated from same tube; his vaccination was successful and no tetanus followed. Report of Camden Board of Health, Nov. 29, 1901, and correspondence. Loc. cit., and communications.
Reported for first time by permission of attending physician		Depressomotors.	"	Child attended masquerade with open wound exposed to red calico domino, the shield having been removed. Reported in full for first time by permission of Dr. Grier.
Reported in full for first time by permission of physicians.		Potass. bromids, chloral, morphia	"	Physician states that tetanus infection was not through the vaccine, but refuses all information. Another case occurred in the immediate vicinity. Three other children in the same family escaped tetanus. Reported for first time by permission of mother of patient.
Reported in full for first time by permission of Dr. Grier.			"	Physician who vaccinated the boy states that he was not well when vaccinated, and that he did not want to perform the operation. Also that the case was not tetanus but "meningitis," though the diagnosis was a contrary one. Reported by Dr. Kelchner, No. Branch Phila. Co. Med. Soc., 1902.
Undershirt had never been washed. At time of appearance of tetanus this was glued fast to ulcer by means of discharge. Reported in full for first time by permission of Dr. Bushey.		Counte r-irritation to spine; antitoxin, morphin.	Recovery	Patient had "caught his vaccinated arm on the hook of an ice wagon, tearing the skin," etc., one week before tetanus developed. His physician refuses all information. Report of Camden Board of Health and correspondence. Physician refuses information. Report of Camden Health Board, and correspondence.
Brother vaccinated at same time and with same virus; no tetanus developed. Report of Camden Health Board and correspondence.		Bromids and chloral.	Death.	Older sister vaccinated from same tube; unsuccessful "take," and no tetanus. Reported for first time by permission of Dr. Hanna.
Reported for first time by permission of Drs. Chew and Joy.			"	Reported for first time by permission of Dr. Purcell.
Playmates state that prior to loss of scab the boy frequently "pounded his vaccinated arm with his fist to show it did not hurt." Forty feet from his house was a stable. Reported for first time by permission of Dr. Moore.		Bromids and morphia.	Recovery	The case was vaccinated by a policeman and was not under the care of a physician at any time until tetanus developed. Reported in full for first time by permission of Dr. Benjamin.
Reported in full for first time by permission of Dr. Benjamin.		Bromids, chloral, antitoxin.	Death.	
Reported for first time by permission of Dr. Purcell.		Cannabis indica.	"	
Playmates state that prior to loss of scab the boy frequently "pounded his vaccinated arm with his fist to show it did not hurt." Forty feet from his house was a stable. Reported for first time by permission of Dr. Moore.		Carbolic acid injections, chloral, bromids, morphia.	"	
The case was vaccinated by a policeman and was not under the care of a physician at any time until tetanus developed. Reported in full for first time by permission of Dr. Benjamin.		Chloral, bromids and antitoxin.	"	

Case.	Locality.	Date of Vaccination.	Color, Age, Sex.	Virus Used. Place on Body.	Dressing Used at Time of Vaccination and Later.	Probable Means of Infection Other Than the Vaccine Virus.
41	Philadelphia...	About Dec. 9, 1901...	White, female, 24.	Glycerinated virus; arm.	No dressing applied...	Severe ulcer at site of vaccination for over 2 weeks before tetanus.
42	Chicago, Ill.	"Since 1899."	White, child	Arm.	At first none; later a bandage.	Bandage remained over wound until both were foul (5 weeks).
43	" "	"Since 1899."	White, child	Arm.	None	Child's bed filthy; severe ulcer.
44	Cleveland, Ohio	1901	White, female, adult.	Glycerinated lymph.	Shield used.	Severe ulcer exposed to infection.
45	New York City.	Feb. 1, 1883	White, male, 6	Arm.	Presumably none.	Large ulcer; former infection by tetanus.
46	Auburn, N. Y.	1885	White, male, 10-12	Bovine lymph; arm.	Probably none	Large angry ulcer and surrounding inflammation; no aseptic care.
47	Philadelphia.	Nov. 18, 1901.	White, male, 38	Dry point; arm. . . .	None after first few hours. . . .	Large necrotic ulcer at site of vaccination; no care of wound.
48	" "	Nov. 8, 1901	White, male, 45.	Dry point; arm. . . .	None after first few hours	Large necrotic ulcer at site of vaccination; no care of wound.
49	Massachusetts	Sept. 10, 1901	White, male, 6	Arm.	Sterile gauze and bandage at first; then dressed by mother.	Trauma to arm; dirty dressing retained for days.
50	Philadelphia.	June 7, 1901	White, female, 6	Glycerinated point; arm.	No dressing.	Large suppurating ulcer exposed to clothing and atmosphere.
51	" "	Nov. 11, 1901.	White, male, 31. . . .	Dry point; arm. . . .	None after first few hours. . . .	Open vaccine ulcer; exposed to contamination.
52	" "	Oct. 27, 1901.	White, male, 38. . . .	Dry point; arm. . . .	None after first few hours	Necrotic ulcer at site of vaccination; no care of wound.

they are known to have carried open vaccine ulcers (vid. "Med. History of Civil war") for months, and that probably a certain percentage of the cases was due to infection through the vaccine wound as likely as any other. It is stated, however, (Part III, pp. 634-5), that "The presence of smallpox among the troops raised a demand for vaccine virus, which was supplied in the form of crusts by the medical dispensaries in the northern cities. This stock was wholly from infants, and each crust was accompanied by a certificate bearing the name of the dispensary, that of the child from whom it was procured, and the date of its removal"; and again, "A small percentage of the virus used was furnished by Dr. E. Cutter of Massachusetts, who raised crusts from the calf by vaccinating with human virus." On the same page it is noted that "In at least one-half the cases a phlegmon of greater or less size was developed instead of the characteristic vesicle" (Report of Surg. C. Allen). "In many cases a violent erysipelatous inflammation with deep abscesses, destroying the subcutaneous tissues and burrowing under the muscles of the parts affected, producing serious constitutional disturbance" (Report of Surg. W. H. Grimes). And on page 647: "Here we have in the locality some thousands of vaccinations made with the same virus at the same time. In one class a large majority had ulcers; in the other only one experienced any unpleasant effect. It is plain that the men and not the virus furnished the *origo mali*. From other localities the same history came."

The foregoing is not cited at this point to demonstrate either that an infection may or may not be introduced with the virus. Rather to show that during the Civil war large bodies of men were vaccinated with human virus and experienced severe ulcers, and that as a rule no dressing was employed in the care of vaccinated arms. That at the same time in this body; cases of tetanus (505) were noted from various wounds (246, 712 in all) in men who also carried a deep vaccine ulcer; and that very probably some of these cases were similar to those studied in this analysis. Certainly we must arrive at the same conclusion as the reporting surgeon "That the men and not the virus furnished the *origo mali*" as far as the

ulcerative condition was concerned. It is then worthy of consideration that a million and a half of men, all with vaccine ulcers exposed for a greater or less time to conditions so favorable to tetanus infection, could have failed to contract a single case of tetanus through this means of entrance, when 500 and odd cases of the infection (about 2 per thousand) actually did occur from all causes in this body. Certainly, until a recent day the occurrence of tetanus as a complication or sequela of vaccinia has not been recognized by distinguished writers, and even in the most recent text-book (Nothnagel's Encyclopedia, American Edition, 1902) there is no reference to the possibility of its occurrence.

The method of production of the vaccine virus is today such a different one from that of 30 years ago, and our methods of observation and publication of our findings so prompt, that we can sometimes arrive at more definite conclusions than our fathers seem to have done. But we are in no way their superiors in the matter of clinical intelligence considering the difference in the facilities at our command, and we have sufficient proof, in the fact that they have never associated the appearance of the tetanus with the introduction of the virus, that they believed the clinical symptoms to indicate otherwise. We now suspect the virus as a natural thing because it is manufactured for profit, and once a salable article can be accused of a flaw there are hundreds ready with the accusation. Nearly the entire output is diluted with glycerin, a small portion only being used in the form of dried points. Recently, just as in the Civil war, an enormous quantity has been called for without sufficient warning to avoid the carelessness of technique that appears inexcusable to-day, but would have been considered scrupulous overcare at the time of the Rebellion. The producers claim that no tube, or point, or dried point leave their laboratories before the lot of virus from which it has been charged has been thoroughly tested upon susceptible animals. Whether this is strictly true in all instances must be left for the individual incredulity to digest. At least in such cases as the recent epidemic of smallpox throughout the United States there has been reason to believe that not only has the virus (non-

Interval Between Vaccination and Tetanus.	Duration and Main Symptoms of the Tetanus.	Treatment.	Result.	REMARKS.
20-21 days	Nearly 3 weeks; trismus, rigidity, contractures.	Ammon., bromid, chloral, asafetida, antitoxin.	Recovery	Reported for first time by permission of Dr. Hulshizer.
"Several weeks."	"Typical tetanus."	Death..	"Ten thousand other children vaccinated with the same lot of vaccine without any bad results." Reported for first time by permission of Dr. Spalding.
"Several weeks."	"Typical tetanus."	"	Three other children vaccinated at the same time with the same lymph and no bad results. Reported for first time by permission of Dr. Spalding. Reported by courtesy of Dr. Runyon.
15 days	Trismus, opisthotonos, convulsions..	Antitoxin.	"	Reported by courtesy of Dr. Runyon.
20 days	5 days; trismus, opisthotonos, convulsions and long convalescence.	Large doses of whisky and calomel.	Recovery	Eight months previously, had also bad tetanus from wound of foot. Same treatment. Hobart Cheesman: N. Y. Med. Record, May 8, 1886.
2 weeks	Less than 1 week; trismus, opisthotonos, convulsions.	Death..	Reported for first time by permission of Dr. W. S. Cheesman.
7 days	24 hours; trismus and convulsions.	Carbolic acid, cocaine, atropin, morphia.	"	Patient in insane ward of almshouse. Many others vaccinated and remained free from tetanus infection. Reported for first time by permission of Dr. Hughes.
19 days	3 days; trismus, risus sardonicus, convulsions.	Antitoxin (immunizing and later in treatment.)	"	Reported for first time by permission of Dr. Hughes.
21 days	Typical picture of severe tetanus; long convalescence.	Antitoxin, repeated injections.	Recovery	Forty other children vaccinated with same virus. No other cases of tetanus developed. Sharp: Indiana Med. Jour., Feb., 1902.
20-21 days	36 hours; trismus, opisthotonos, convulsions.	Antitoxins, bromids, chloral.	Death..	Among 12,000 cases of vaccination with the same virus, and by same physician, no other cases of tetanus developed. Reported for first time through courtesy of the coroner's physician.
23 days	15 days; trismus, convulsions, exhaustion.	Carbolic acid, morphia, atropin, whisky.	"	Patient in insane ward of almshouse. Others vaccinated and remained free from tetanus. Several other tetanus cases in hospital. Reported for first time by permission of Dr. Hughes.
About 16 days	5 days; trismus, rigidity and convulsions.	Carbolic acid and antitoxin.	"	Patient frequently at work shoveling in yard where tetanus bacilli had been found in rich culture; known to have repeatedly scratched his vaccine wound. Reported for first time by permission of Dr. Hughes.

glycerinated and glycerinated) been contaminated in a manner that was unwarranted, but that the virus itself was at times so dilute as to render a typical vaccination rather improbable than likely. These are, however, not questions that should detain us long. We know that an attempt, honest or superficial, has been made to supply pure virus to the public at a time when more has been needed than could easily be furnished; but it requires more than the affidavit of an interested party to convince that the virus was pure, in the light of the bad results that have ensued. We have not, therefore, been compelled to rely solely upon bacteriologic and culture experiments, and inoculations, to convince us of the presence or absence of micro-organisms or their toxins. When tetanus began to make its appearance, however, another and more serious question was involved than that of the discomfort and inconvenience, and the conviction required prompt and scientific proof as to where the blame should fall. Up to the present time many experiments have been carried out with a view to discovering the presence of the tetanus spores in the vaccine virus, and especially in the glycerinated form. It has never been seriously considered that the tetano-toxin could be present in the virus, which when introduced into two children, both healthy, from the same capillary tube, seemingly produced tetanus in the one, while the other escaped infection. Only one resort was left; that the tetanus organisms were introduced, or their spores, and remained idle or quiet, for three weeks or more, finally breaking out into an acute and vicious attack of the typical tetano-infection; this, of course, only in the event that the virus was associated at all with the tetanus. In none of the experiments published up to date, however, has success followed the effort to discover the organisms. Many other, and nearly all, of the pus-producing organisms have been obtained and isolated, but the tetanus bacillus never; and so far as this evidence is concerned, it must weigh against their presence. The work in this line has been carried out not only by the writer, but by a number of others whose ability and conscientiousness can not be questioned. The personal experiments of the writer included

anaerobic cultures in all the media and finally a series of tests by the bouillon method recently employed by Levy and Bruns (*Deutsche Med. Woch.*, Feb. 20, 1902), by means of which they obtained tetanus bacilli and their spores in 4 out of 7 specimens of gelatin bought on the market. Bouillon tubes (100 c.c.) were inoculated with specimens of the various makes of vaccine virus (all dated at the same time as the virus used in the Philadelphia and Camden tetanus epidemic), and heated for a time at 75 C., in order to destroy all other bacteria possible without inhibiting the growth of the tetanus germs. The tubes were then kept in the oven at body temperature for 10 days and examined for the tetanus bacilli, and with negative results in every case. Inoculation experiments then remained as the only resort, and were looked upon as conclusive evidence not only of the absence of the micro-organisms, but of their toxin as well, if that were needed. A number of experiments on white rats and guinea-pigs had been carried out by the City Health Board of Camden, N. J., also by the New Jersey State Board, and by numerous individuals (Pitfield, Board of Health of Pennsylvania, *Amer. Med.*, Jan. 25, 1902, et al.) in the city of Philadelphia, all with negative results, not one of the animals developing the disease. My own inoculation experiments upon white mice gave identical results. Of ten white mice injected, two with pure virus as obtained on the market; two with scrapings from a dried ivory vaccine point, and six with specimens from the bouillon culture tubes (into the peritoneal cavity of each 0.5 c.c.), the following results were obtained: In none of the animals did tetanus develop. Of the four vaccinated on the abdomen in the ordinary way, all recovered perfectly from a local inflammation, non-characteristic in type. Of the last six (injected into the abdominal cavity) two died after three days with lesions of peritonitis, and four recovered from an evident indisposition. These results were looked upon as conclusive, but an unusual opportunity was forced by necessity upon the writer and two colleagues of inoculation tests upon the human being. It had appeared that out of some hundreds of thousands of vaccinations performed in Philadelphia and Camden 17 had

developed tetanus within four months' time. Of these some had been vaccinated with the virus of one prominent producer, some with that of another; some with glycerinated lymph, some with glycerinated points, and a number with dry virus on ivory points. The virus of one producer seemed to have been associated with the greater number of cases of tetanus. The results of the tests of these makes have already been mentioned, in one case a portion of one of the tubes that had actually been used being cultured, with negative results. At the same time a regulation was put in force by the City of Philadelphia requiring the successful vaccination of all students of the University of Pennsylvania in whom this was possible, or in whom such successful vaccination had not been obtained within five years. There was no choice but to employ one or all of the "suspected" forms of virus, and as there was little fear of the result in the minds of those responsible, that production was used almost exclusively, which had seemed most unfortunate in the series of Camden cases. The only exceptions were those in which the students bought and supplied their own special choice of virus, this privilege, of course, having been freely extended. All of the students who took advantage of this opportunity, that came under the personal care of the writer, chose for themselves the dry points made by another firm whose dry points had also been used in two of the Camden tetanus cases. The virus used by Drs. Swan, Robrecht, and the writer, who together carried on the work, was obtained at the time when the tetanus epidemic was still in evidence, so that it must have been produced at the same time, approximately if not exactly, with that used in the Camden epidemic. Many of the tubes of lymph bore the same date as those known to have been used in the Camden cases of tetanus. Of the 3000 and odd students all were vaccinated except those that filled the above requirements, and all unsuccessful vaccines were revaccinated at least once, and in several instances as many as eight times. As nearly as could be calculated about 1600 vaccinations were performed. Nearly the same methods of vaccination were employed by the three operators, including a careful sterilization of the skin surface of the arm and the application of a sterile dressing completely excluding the wound from the atmosphere, and renewed at least once daily. The results were the same throughout the student body. Not one case of tetanus developed, although Philadelphia produced in all seven or more cases, all of which are included in the series considered in this paper. In only rarely exceptional instances was there a severe sore at the site of the vaccination. The writer also vaccinated himself with the same virus, and experienced a severe ulcer that healed only after 9 weeks of the most painstaking care. The severity of the process was ascribed either to some infection at the time of the operation or to an unusual susceptibility caused by a lapse between vaccinations of over thirteen years. Reference will be made in the summary at the conclusion of the paper to this series of human inoculations, note simply being made here as to the synchronicity between the latter, those performed upon the lower and susceptible animals, and the cases of tetanus following vaccinia; also to the practical, if not absolute, identity of the virus used in all three instances.

One of the most difficult questions to answer offhand would appear to be that regarding the occurrence of two or more cases of tetanus in the practice of one physician. In the above series Cases 23 and 26 were vaccinated by

the same physician, also Cases 24 and 31 by one man, and finally Cases 27 and 30 by still another. The disease appeared in groups, however, also with regard to time and to place, and far more with respect to the locality. In all these instances many others had been safely and successfully vaccinated by the same men. In a number of instances the same tube of lymph was divided between two children, one of whom died of tetanus, and the other thrived. No one can doubt in such an instance that in one case there was a secondary infection of the vaccine wound by tetanus germs not in the vaccine virus; while in the other only a vaccine ulcer was present that failed to be infected. Such evidence as the foregoing is unusual both as to amount and quality, and is unobtainable in cases that date back even for a few years. In England no such tests were made, and evidently no suspicion was entertained that the virus might have caused the infection. It is interesting in this connection to note that in no case recorded in the literature have tetanus bacilli or their spores been obtained from the vaccine wound, either on the cover-glass preparation or in the culture tube, though many attempts have been made. With regard to the method of vaccination we are also intimately concerned. It is as well known that former methods were dangerous and liable to introduce infection as the fact that to-day most vaccinators realize the responsibility of their task, and take proportionate care in the preparation of the site, and throughout the entire process of vaccination. The larger the surface scarified the greater the surface exposed to possible secondary infection. But apart from a seeming lack of thoughtfulness upon this point we may say that to-day only rarely does a case suffer from the carelessness of the operator. There seems to be no question that Case 41 is an example of just such carelessness, not only in the operative procedure itself, but in the lack of care in the matter of instructing the patient as to the dressing of the wound. Such cases are as rare as they are criminal, and the absence of such a coincident influence in any of the other recent cases reported in this city or in Camden, or in fact throughout the country, is one that is a subject for congratulation. The fact that tetanus appeared after and during vaccinia in the days when vaccination methods were careless, and there was no subsequent care of the wound; and at a time when the healthy virus was carried directly from one arm to another, rather indicates that the same causes operate now as did then, and that if the infection occurs at all it is during or after the operation. Remove the possibility of uncleanly surgical procedure, and there is but one alternative remaining.

The subsequent care of the wound presents a field for thought that comes much closer to the question of tetanus infection than any yet touched upon. In every instance, in the series of cases included in this paper, in which any information could be obtained whatsoever, there has been found (*vid. case histories*) some gross breach in the care of the wound; and usually the presence of some active influence that would offer more than a likely means of entrance for the tetanus or any other infection. Probably no extensive series of vaccinations has been executed with such studied aseptic care, and with such similar methods as that already cited, in the case of the students of the University of Pennsylvania; and probably no such favorable results have ever been obtained from vaccination. The successfulness and effectiveness of these vaccinations were evidenced by the fact that out of the entire student body only one con-

tracted smallpox, and he the son of a homeopathic physician who was at that time and for weeks previous, in attendance upon a case of virulent, confluent smallpox. He had refused to allow his son to be vaccinated until required to do so by the University authorities, and the operation was done so late that it fell far within the ordinary incubation period of smallpox. Of the cases studied in this paper, many wore no dressing upon the arm until tetanus appeared. In fact, until a recent time no dressing was considered necessary; and to-day many men refuse to look upon the surface which they scarify as a surgical wound. Nearly every case showed for days a large open ulcer, burrowing deep into the tissue. Two cases were those of soldiers, sleeping anywhere and everywhere, and looking on a bath as a luxury. Several lived over, and next to, and played continually in stables, the hotbed of the tetanus bacillus. One slept in bed every night with her father who had charge of the horses. Two, at least, are known to have forcibly maltreated the vaccine wound. Many removed the scab for inspection. Two threw or dropped the scab on the ground and replaced it in the wound, one wearing it for hours. One threw his bandage upon the ground and replaced it on the arm at a later time. Several wore a shield over the wound without cleansing or removing until it was full of pus and dirt, and foul to the smell: one of these reached the 18th day, and the writer's case the 28th day with the shield still in place. One, when tetanus developed, exhibited a merino shirt sleeve that had never been washed, matted in the vaccine wound. Two Glasgow physicians in recently reporting a case (*Lancet*, March 22, 1902) sarcastically comment upon the conclusions of the Camden Health Board, and yet they themselves in searching for a "subsequent infection of the vaccine wound" (which they declare impossible) forget that they placed over and around it a "bunion plaster" covered with adhesive strips, and that this was not removed for two weeks. One need not even accuse the skin of furnishing the tetanus infection under such circumstances. For fairness' sake, if they did their duty by the skin, as we are convinced they did, it should be considered as less likely than the "bunion plaster" to have been to blame. One child had been throwing dirt at another shortly before tetanus had appeared. A very few cases had ulcerative lesions on the lips or mouth, or on other portions of the body. Not one had even an approximately aseptic treatment throughout more than a small portion of the time from vaccination to tetanus. Only one was excluded from the chance of outside infection at any time in the course of the vaccinia, and this time was probably so short that it can hardly be considered. And with this point we conclude our investigation of the possibility of outside infection. Because tetanus has occurred in surgical conditions and in operations in which the technique has seemed flawless, no care is too great if the disease is to be prevented. The writer well remembers a series of deaths from puerperal tetanus that occurred in the hospital service of one of his professors during his graduating year and was caused by a bichlorid vaginal douche that carried the tetanus spores. Bauer (*Ziemssen's "Cyclopedia"*) cites many cases of tetanus in which there was no injury to the surface of the body. Tetanus has been known to follow the extraction of a tooth, the application of cupping glasses, the sting of a bee, the catching of a fishbone in the throat, the application of a blister, the hypodermic use of drugs, and during the last year there has been reported a case in which the only abnormality in the body was the presence

of ascarides in the intestine. In the *Medical Times and Gazette*, 1854, p. 376, etc., a long series of cases is cited of tetanus following burns. It seems hardly likely that anyone will consider it probable that the scorching substance introduced the tetanus bacillus or its toxin. Such occurrences indicate that the micro-organisms are always at hand, and that, as with Shiga's and Flexner's bacillus of dysentery in uremia and chronic diseases, the opportunity is all that is needed to start the attack. The bacillus is always to be found in the dirt of the street as has been shown by repeated experiments. Moreover, its distribution varies in localities in such a way as to warrant the statement by Bauer that, "According to the report of Holland the disease is rare in Iceland, while upon the neighboring Island of Heimaey the population would die out if it were not recruited by immigration, since almost all the children die of tetanus." Long Island is an especially afflicted portion of our own country. In the garden soil, the manure, the tetanus bacillus is particularly at home, and there is no doubt that the skin every day, and perhaps always, is the habitat and resting-place of not only some of that dirt, but the tetanus bacillus. Chantemesse and Widal have obtained pure cultures from the vagina. It does not seem probable that the infection, even in most cases, must come from the skin as suggested by the Drs. Findlay; nor that the proximity of the vaccine wound to the ground had more than a passing influence. They themselves suggest shortly after that the wound was completely sealed from the atmosphere, and in this way they deny their own proposition. In only two of the cases in our series was the vaccination known to be on the leg (Cases 20 and 23), and one of these being a baby was hardly likely to sweep the dirt from the ground "with its skirts." In Cases 24 and 28 the infection almost certainly did not come from the skin, but directly from the ground to the wound. Such opportunities for infection of the vaccine wound as have been cited in the above series would not be considered doubtful in the case of a typical surgical wound. Not even a shield can be looked upon as protection for the vaccine wound. A surgeon would be drummed out of the profession who allowed such opportunities for infection to occur, and by his patients if not by his colleagues. Neither should we hesitate here in fixing upon the probable means of entrance of the tetanus bacillus. Closely allied in its weight of evidence is the period of incubation. Of 50 cases, in which the period of time between the vaccination and the appearance of tetanus was known, in 44 fourteen days or more elapsed, in 31 twenty days or over, in 6 twenty-five or over, in 1 twenty-eight days, in 1 seven weeks, and in 1 eight months. In only 5 cases was there any resemblance to the period of incubation ordinarily ascribed to acute tetanus. Two cases (2 and 3) appeared and terminated in a few hours. These cases were vaccinated by the arm-to-arm method and by a darning needle. Graetzner ("*Der Krampf. insbes. der Wundstarr. Krampf.*" 1828) has noted a patient whose leg was amputated, and who developed typical tetanus the moment the crural nerve was included in a ligature, and died of tetanus in six hours. Robison (quoted by Bauer) records a case of a negro who wounded his finger with a piece of porcelain and developed tetanus one-half hour later. Ward of Manchester, a case developing tetanus 10 weeks after injury; Friedreich, one three months after injury, and Morgan one two months after the wound had healed. In the latter case the autopsy showed a splinter of wood in the cicatrix (all

loc. cit. Bauer). It has already been shown in a previous article that the incubation period in tetanus may vary from a few minutes to many weeks. That of the large number of cases in the Civil war averaged eight days. But there is no variance in the opinions of writers on the subject that the usual incubation period of tetanus, and invariably that of the fulminant or acute type, is comparatively short, averaging about ten days and often amounting to a few hours. In the series now considered there has been an almost invariable occurrence about the 20th day following the vaccination. It has been previously pointed out that this is the time when most often the vaccine wound is exposed through loss or injury of the scab; and also the time when the patient is most likely to be careless of the healing wound. Still more cogent is the fact that it is at just this time that tetanus would be expected if it occurred as a secondary infection of the vaccine wound at the acme of the vaccinia. It must not be forgotten that the tetanus organism may rarely be introduced in substances such as the splinter in the case cited above, and at length be liberated. This, however, can not have been the order of things in the cases under discussion, since no foreign body is introduced in the operation of vaccination that would harbor the tetanus organism other than the glycerin, which is itself a powerful hypodermic irritant, and would tend to accelerate rather than to retard the action of the tetanus process. Two interesting cases have been reported of tetanus infection through a chronic ulcer of the leg, approaching the picture in vaccinia better than any other example offered. The one is noted by Greenwood (*Lancet*, April 30, 1898), and the other by Garnier (*Presse Medicale*, No. 75, 1898), neither ulcer having been cared for, and one being on the leg of a tramp who, presumably, often slept upon the ground. The second was a varicose ulcer. In neither of these cases was any other lesion discoverable upon the body. Such cases are not needed, however, to witness self-evident facts.

The clinical symptoms in 51 out of the entire number of cases when ascertainable have been found to be of the most severe type. In all except Cases 1 and 2 there was well-marked trismus, and if we are correct in thinking that those cases actually were of tetanus, this symptom may have been present. The report is too meager to be of much value. In some cases there were repeated convulsions; in 25 opisthotonos. In all, when the symptom was mentioned at all, there was rigidity of the abdomen, and in many of the whole body. In 11 the course of the tetanus lasted only a few hours; in 24 for under five days; in only 9 for over a week; and the latter cases ultimately recovered after a mild attack. The termination was a fatal one in 41 cases, and recovery followed in 11, giving a mortality of 78.8 per cent., as against 50-60 per cent. as an average mortality in tetanus under all forms of treatment. In the chronic type such as must have been present if the vaccination caused the infection, the prognosis is always fairly good, a large number of, if not most, cases recovering. This feature has been commented upon at such length in a former article that it seems unnecessary to dwell further upon it. If then, we add to the acuteness and severity of the course the general fatality of the series, there seems to be still less ground for doubting the presence of a secondary acute infection. The mortality of tetanus in the Civil war was 89.3 per cent. There remains for discussion only a few minor considerations such as the age, the sex, the time of year, the grouping of cases, the

frequency of occurrence, and the final outcome of the case. Forty-one cases occurred in childhood, and 11 in adult life. Of these 4 were under 5 years, 24 between 5 and 10 years, 12 between 10 and 20 years, and 8 above 20. The large majority of cases of ordinary traumatic tetanus occur in boys or men, and for obvious reasons of exposure, etc. In this series there seems to be little difference between the two sexes (male 28, female 22, sex not stated in 2) in this regard, and perhaps for the equally obvious reason that at the age (childhood) when vaccination is most often performed, both sexes are equally exposed to moderate violence and to contamination from soiled clothing, and uncleanness of person.

It is noteworthy that in the entire series of cases more than half (and all cases of the recent epidemic) occurred between October 1 and March 30. This is contrary to the old belief which gave the summer the greater number of cases. Solly and Simon (*Med. Times and Gaz.*, June 17, 1854) have noted this same autumnal or winter occurrence in a long series of cases. No rule can hold, however, when a requisite condition is the furnishing of a number of external wounds for the entrance of the infection. July 4 in America will cause more cases in the summer than smallpox in the winter, and we must look upon the occurrence of the tetanus simply as being synchronous with the cause that prepares the way. Bauer states, however, that "in one and the same place there are variations in the frequency of tetanus at different times"; that "statistics with regard to certain districts in Europe also show differences in the frequency with which tetanus occurs in these various places."

There has been no well-marked groupings of cases following vaccination previous to the Camden epidemic. Glycerinated points and tubes, dry points, arm-to-arm vaccination, all methods are represented in the above list of cases, and the first three were used in the Philadelphia-Camden outbreak. It has already been mentioned that many of the cases were vaccinated with the virus from one producer. It seems unnecessary to conclude that this was more than a coincidence due to the fact that one production of virus was almost generally in use throughout the eastern portion of the country, and that in this way a far larger number of cases of vaccination were present for infection by the tetanus or any other organism than was the case with any other virus. Wells of Chicago has shown (*Phila. Med. Journal*, June 16, 1900; and *N. Y. Med. News*, June 1, 1901) that the firearms, the cartridges, and the wadding of the same, are not the origin of the July 4 tetanus infection, except as they carry into the firearm wounds means of infection already on the person, and this by a most elaborate and convincing series of experiments. His conclusions are that in all cases the infection has probably been from the skin, and that the wound merely opened the surface to the organism. He also states that in Cook County, Ill., between June 25 and July 14, 1900, there were 27 deaths from tetanus. During the same period in 1899 there were 17 deaths, all in boys (the series upon which his bacteriologic experiments were carried out). Two hundred blank cartridges were examined, representing all the makes used, and in none were the bacilli, their spores, or toxins found. Six samples of street dirt from different places in Chicago all gave cultures of virulent tetanus bacilli. Similar experiments were carried out by Taylor (*N. Y. Med. Journal*, July 20, 1901). He arrived at the same conclusions. Certain parts of Long Island, Chicago, and (judging from the records of the Health Board of our

own city) Philadelphia as well, have annually a long list of tetanus cases. During the year 1901 there occurred in Philadelphia alone 29 cases of tetanus from causes other than vaccination, and during the period Oct. 1, 1901, to Jan. 1, 1902 (the time including the tetanus epidemic), there were in all 12 cases independent of vaccination. In short, there are more cases of tetanus in Philadelphia from other causes during the same period, than from nearly a million open wounds due to the operation of vaccination. During 1899 there were 73 deaths in New York City, and in 1901 there were 32 deaths in Baltimore, all independent of vaccination. Twelve of the latter number occurred at one time. Six occurred in August, 6 in September, and 8 in October (the identical months of the Camden outbreak). Twenty-five of the 32 cases occurred in children under 21 days old, and all were in charge of midwives, none developing in physicians' hands. Twelve cases occurred within a few blocks of one another and under the care of one midwife. Traumatic cases were reported in Camden, Pittsburg, Trenton, and in fact, all of the cities neighboring upon Philadelphia at the same time with those associated with vaccination. No case of tetanus has ever followed vaccination in the District of Columbia, though there have been occasional cases due to trauma. On the other hand, Craig mentions several cases following vaccinia in Brooklyn (1896-1901), though the records can not be obtained. Seven cases have been reported in the newspapers as occurring in Cleveland during 1901 with regard to which no information can be elicited. One case was noted in St. John, Neb. The result of treatment in the cases analyzed in this paper only bears out the evidence already collected. In some cases death was the outcome, although the incubation must have been one of three weeks to have connected the infection with the virus, an unheard-of combination of an invariably long incubation with an acute course and a fatal result.

CONCLUSIONS.

Infection has taken place in most if not all cases at the site of the vaccination. We have found that the exact time of infection and the exact means are impossible of absolute and scientific proof; and that the grouping of a large number of cases in a certain locality, and following the use of a certain production of vaccine virus, would tend at first sight to speak for a primary infection, carried in with or by means of the vaccine virus into the system.

On the other hand, we find that a secondary infection, and one occurring as a rule about the time of the acme of the vaccinia, is indicated by the otherwise discordant chronic incubation period and acute symptoms, by the almost uniformly fatal termination, by the severity of the course of the disease, by the millions of normal vaccinations with the same virus, by the simultaneous deaths from tetanus known to be due to other causes, by the diminution in the number of such cases now that continued aseptic care is more generally exercised, by the fact that in every case in which particulars are known over-abundant opportunity was offered for such secondary infection, and finally and most important, by the absolute failure of all bacteriologic and inoculation experiments on the lower animals and man to indicate the presence of the tetanus micro-organisms or their toxin in the virus.

There is neither time nor space to admit of a discussion of the nature of the tetanus itself, or its treatment except to note the fact that out of 13 cases treated with

antitoxin 10 died and 3 recovered (mortality 76.9 per cent.). In all of these cases the usual treatment was employed in conjunction with the serum. Seven cases recovered under the customary routine of chloral, bromids, opium, cocain, and more rarely physostigma; and 32 died (mortality without antitoxin 82 per cent.). Of the entire number of cases 11 recovered and 41 died (mortality 78.8 per cent.). It would certainly seem as if the glycerinated virus, as well as the vicious influence of the shield, was disposed to present a more extensive ulcerative surface and a greater tendency to sloughing than the dried virus, or the arm-to-arm method. The latter is to-day an impossibility on account of the ever-spreading syphilization of the masses. But if it eventually proves true that, as time goes on, glycerinated virus opens a better avenue to the tetanus germ than the less cleanly but safer dried point, we will have to beat a retreat until we discover a substitute for the glycerin that does not carry its disadvantages. Our whole series of cases seems to prove that the infection is one that depends somewhat upon the susceptibility of the person. Otherwise, it must needs be a much more frequent disease. Also that the tetanus micro-organism or its spores must frequently be present upon the skin, and ready to take advantage of an opportunity of entrance. How much more likely this must be the case when the patient is uncleanly, or lives or plays in the street, garden, or stable, needs hardly a word to direct the attention.

A paper such as this would have failed of its mission if it omitted in closing to repeat the statement that the vaccine wound is a surgical condition that requires as skilful care as an abdominal incision. And that the responsibility rests no more with the physician than with the patient to carry out strict asepsis in the care of the same until the perfect continuity of the surface is restored. Otherwise, let the one who relaxes suffer the blame if tetanus develops; and be it doctor or patient that lets down the bars, his carelessness may cost a life and will almost as certainly as the disease develops. The symptoms of tetanus are the sealing of the death warrant, not the beginning of the infection. Fatality may rarely be averted, but the odds are too great to allow the risk. Tetanus in the course of or following vaccinia appears to be no more inevitable or necessary than hemorrhage after the tying of an artery. And if proper precautions be taken, only such cases as are predestined to bleed or to contract in a tetanic spasm will confront the physician. That vaccine virus could be infected with tetanus no one will deny. But that it has been, and in such cases as here come to view, deserves the full denial that has been given by the clinical symptoms and by a careful scientific study. It would appear that tetanus in the course of vaccinia is sometimes an unavoidable accident, due to the indiscretion or wilfulness of children, old or young; but with the principle laid down that the wound shall be treated aseptically from start to finish tetanus will disappear from the pages of the medical books as a complication of vaccination. And had the facts been realized sooner, the condition would never have found a place there.

The writer would acknowledge most cordially the assistance rendered by many physicians in the attempt to secure full clinical details of the cases included in this paper, and especially by Drs. Alfred Stengel, H. G. Wells, F. J. Runyon, and C. Hampson Jones.

A telephone may be used to supply the current in electrical probing for foreign metallic bodies.

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TO THE MEDICAL PROFESSION OF THE UNITED
STATES:

The necessity for a thorough organization of the medical profession was never more urgent than at the present moment, nor has the appreciation of this necessity ever been more keenly felt than at this time.

The American Medical Association, which will hold its fifty-third annual session at Saratoga on June 10, 1902, being the only national representative association of the medical profession in the United States, is entitled to and claims the earnest support of every medical practitioner who has at heart the highest and best interests of the profession. An organized profession represented in this great central body with affiliated and influential state and territorial associations extending through their subdivisions into all the districts or counties, is the only real guarantee of the protection of the public health and of the medical profession. The enactment and enforcement of rigid medical laws; the establishment of reciprocity or interstate comity by which a uniform standard of requirements for the practice of medicine in the various states, which without any sacrifice of the very highest requirements, would permit a physician, having gone before a competent board in one state, to practice in another without being subjected to a second examination; the establishment of a National Department of Public Health; the support of the medical staff of the United States Army in their effort to maintain their rights; to prevent unjust restrictions upon animal experimentation which has proved to be one of the most important methods of research and of the most lasting benefit to humanity, can be accomplished in no other way than by thorough organization of the profession in the American Medical Association.

JOHN A. WYETH, M.D., President.

THE NEXT SESSION OF THE AMERICAN MEDICAL
ASSOCIATION.

Considerable space is taken up this week with matters connected with the next meeting of the Association. That part which refers to Saratoga shows that village to be an ideal spot for such a large gathering as the coming session promises to be. The hotel accommodation is more than ample and all who attend can be cared for without crowding or inconvenience. The places in which to hold the section meetings will be found satisfactory. Above all, the hotels and meeting-places are

all near to one another, and three minutes' walk will reach the extreme points.

The programs speak for themselves. They show that from a scientific point of view at least, the Saratoga meeting will be a decided success. They indicate that the best men in the profession of this country will be heard, as well as some from abroad. The ophthalmologic section is to be congratulated on having secured Professor Haab of Zurich to read a paper before that section.

The coming meeting will be the first under the reorganization. The House of Delegates will relieve the general meetings of the legislative functions, and, as these general meetings—except the first and last—will be held in the evening, they will not interfere with the morning meetings of the sections, thus giving more time for scientific work. We look for a marked increase in the value of the papers and discussions and consider that it will be largely owing to this fact. Indeed, the section meetings should decidedly gain in interest from this time on if the increased opportunities are duly utilized and thereby the reputation of the Association as a scientific body will be enhanced. The social features, which are an important side issue in meetings of this kind, will also encroach less upon the regular work without being themselves neglected.

It is worth bearing in mind that this first meeting of the House of Delegates will be an innovation on all previous assemblies of the kind as giving the example of a truly representative body in the medical profession. It is not for this reason in any respect a doubtful experiment; on the other hand, it is only the realization of a long-needed reform, but none the less unique even in this respect. We believe that the coming session, as did the last meeting, in which the reorganization was effected, will take its prominent place among the landmarks of the Association.

A VOLUNTEER NATIONAL EXAMINING BOARD.

A history of the movement for the regulation of the practice of medicine and for the elevation of the standard of medical education in the United States is an interesting one. First a few and later practically all of the states enacted laws which granted a right to practice to those holding diplomas from any chartered medical college; then this right was limited to those who had graduated from colleges with a specified standard. This standard was usually one of time required to complete the course. At first, two years was sufficient, then three years was necessary, and ere long four years was demanded. Medical colleges have followed by gradually extending their time requirement, so that to-day only two colleges grant the diplomas on less than four years' attendance.

But while the standard has been raised through increasing the time so that it is double what it was a quarter of a century ago, another movement has taken place. Those who were earnestly active in the move-

ment of elevating the scientific and educational standard of the medical profession have always realized that so long as medical colleges were private institutions and conducted on commercial lines they were not to be depended on to decide who were qualified to practice. This has resulted in the enactment of laws in many states creating boards of examiners and requiring all applicants to pass an examination before these boards. At the present time thirty-eight states require examination and nine others require either an examination or a diploma from a recognized college and the number of such colleges in some of these states is very limited. Efforts are being made in those states that do not now require examination to have this substituted for the present plan of licensing on diploma, and we may expect very shortly to find that the ordinary college diploma is not recognized as a sole qualification in any state.

This condition of affairs is very satisfactory from the view point of a better qualified profession, but it has a most unsatisfactory phase—at least to those who desire to remove to another state to practice. Since there are fifty states and territories, including the District of Columbia, a physician desiring the right to practice anywhere in his own country must get fifty licenses. The average young graduate does not know where he will locate; while he is yet well up in all the fundamental branches he would like to go through the ordeal of passing all the examinations so that he can go anywhere he pleases in his own country. But he finds it impossible. Hence he selects his field, conforms to the law of the state and settles down to practice. In a few years he concludes he can do better in some other state, but the ordeal of an examination looms up. He is rusty in most of the fundamentals, and he has made no attempt to keep up in many of the branches; thus to move to another state is to him a serious matter.

A remedy has been suggested in reciprocity, but, as we have stated before in these columns, reciprocity is impracticable. The licensing boards of a few of the states have already grouped together for mutual exchange of courtesies, but reciprocity will never be acceptable to even the majority of the states until there is more uniformity in the laws that now prevails, or is likely to prevail for many years. But even a uniformity of law will not suffice: there must be a uniformity in tests and standards which is impossible under present conditions, wherein the members of most of the examining boards are appointed through political influence and not through the selection of men qualified for the position of examiners in scientific medicine.

In an editorial in *THE JOURNAL* last January¹ we advocated the creation of a national board of examiners as the most satisfactory solution of the difficulty. We recognized at that time that "the constitution of the United States does not place the regulations of the practice of medicine among the functions of the general government, and consequently the practical carrying out of the

idea of a national board is met by obstacles not easily overcome, provided the idea is to compel recognition of certificates from such a board by the various states. The constitutional objections would not apply to such a board as we suggest below. At least the obstacles are no greater here than in carrying out the idea of reciprocity so-called. In either case there must be a voluntary relinquishment of rights on the part of the state, and the state can only give its examining or licensing boards the privilege of accepting the credentials of a corresponding board of another state."

At the recent meeting of the Committee on National Legislation, Dr. W. L. Rodman of Philadelphia brought the subject before the committee and urged the advisability of a volunteer national examining board. The committee, which is representative and national in character, after considering the subject, heartily endorsed the idea and in its report to the House of Delegates will urge that body to take up the subject. We print elsewhere a communication from Dr. Rodman and ask our readers to give it consideration.

If the certificate, diploma, degree or whatever it may be called, of the proposed national examining board is to be accepted by all the states it will be necessary that the board be composed of men of such high standing in the profession and of such scientific attainments, that they will command the respect and confidence of all. The board must be of such a character that to be a member of it will be a high honor; but the remuneration must be sufficient to offset any sacrifice of time the members would have to make to attend to the duties. The fees would without doubt bring in a sufficient sum to meet all expenses, but under no circumstances should the remuneration of the board depend on the fees.

If possible, the creation of the board should be recognized by Congress. As we suggested in our former editorial the board might be created ostensibly to examine applicants for the three arms of the service; at the present time applicants for the medical departments of the Army, Navy and Marine-Hospital Service are examined by boards representing the respective services. While ostensibly the functions of the proposed board would be to pass on the qualifications of those desiring to enter these services, the acknowledged function would be to grant certificates or diplomas which should be a guarantee of a thorough and practical general and medical education. However, it is not absolutely necessary that the board be created by Congress; the degree-conferring bodies of Great Britain, such as the Royal College of Surgeons, the Royal College of Physicians, and the Apothecaries' Hall, of England, and the similar bodies in Scotland and Ireland, while chartered by the government, are private institutions.

The examinations by this board must be rigid, broad, and practical; as suggested by Rodman, the applicants must demonstrate their knowledge in hospitals at the bedside. Above all a thorough general education must be demanded, but not necessarily an academic degree.

¹ *JOURNAL A. M. A.*, January 11, p. 108.

The board should meet three or four times a year in as many different parts of the country.

It will, of course, be recognized that such a board would not help those now in practice, as but an extremely small percentage of these would be able to pass such an examination, unless after special preparation for it. It is for the future, for the young men who are ambitious, who want something more than an ordinary M.D., or a state license. The state boards would still exist, as probably only a minor portion of those entering the profession would be qualified, or have the ambition, for the national diploma.

We earnestly commend this idea of a voluntary national examining board to our readers and ask for a free expression of opinion pro and con. The subject will certainly be brought before the House of Delegates at Saratoga in June, and that body will undoubtedly be glad to have the opinion of the profession on the subject.

MASSAGE AND GYMNASTICS AS THERAPEUTIC MEASURES.

That massage and gymnastics in skilful hands constitute valuable and efficient therapeutic measures of a large range of applicability is no longer questioned by those who have studied the matter conscientiously. In many of the European countries these forms of mechanical therapy are receiving much more attention and encouragement than seems to be the case in America. In Stockholm there has existed for years a fully equipped, legally authorized and regulated institution—"The Central Institute"—for the instruction and training of properly qualified men and women in massage and gymnastics for therapeutic purposes. In order to enter this institute the applicant must possess the degree of bachelor of arts and the course of instruction and training extends over two or more years. In Berlin we understand that these forms of méchano-therapy are represented by a regularly constituted chair in the university.

Graduates from the Central Institute in Stockholm and from other reputable institutes have settled in various parts of the world and successfully practiced their calling, thus becoming in many instances the pioneers in introducing scientific massage and gymnastics. Not a few have found their way to the larger American cities, but up till the present time American physicians have not been sufficiently impressed with the varying degrees of qualification possessed by those who have established themselves as masseurs and gymnasts, and there is no doubt that lack of discrimination may have delayed proper recognition of the value of massage and gymnastics as therapeutic means. It is probable, too, that the general failure of the medical profession to properly interest itself in scientific massage and gymnastics had not a little to do with the development and spread of the peculiar form of quackery known by the anomalous term of osteopathy, which in a large measure simply represents massage run wild and without the proper

control of physicians. The osteopath endeavors by false pretensions to push massage and gymnastics beyond their proper limits, and, although devoid of adequate medical training, he boasts of his skill in treatment of various diseases whose nature he can not understand. He consequently is merely a quacksalver. The educated masseur and gymnast, on the other hand, recognizes that his true position is that of helper of the physician and surgeon without whose advice and recommendation he does not undertake the treatment of patients. No doubt the lack of proper interest in massage and gymnastics on the part of physicians is traceable in large part to the complete absence until recently of any effort to teach students either didactically or practically so much as even the fundamental principles of mechano-therapy.

We have had since the beginning of medical teaching in this country regular courses of lectures on "materia medica and therapeutics," in which there have been marshalled before the bewildered student a vast array of mostly unimportant information concerning the habitat and origin, Latin naming, modes of preparation and doses of medicinal preparations, together with extensive lists of diseases and conditions in which the various preparations, frequently obsolete, have been used with more or less empirical success. Only the other day the candidates for internships in one of the largest general hospitals in the country were asked to give Latin or official names of some 25 substances used in materia medica, among them being such potent and powerful substances as slippery elm bark. It is high time that this sort of teaching is abandoned. Medical students have enough to remember of importance without being compelled to memorize literally the many useless facts of "materia medica and therapeutics" as ordinarily taught. Now the real place for teaching therapy is the clinic, stationary and ambulatory; it is here that massage and gymnastics, for instance, should be introduced to a greater extent than now seems to be the case; and for two reasons, first, because of the real service of massage and gymnastics when properly used in certain suitable cases, and second, in order that medical students, graduate as well as undergraduate, may observe the practical application of mechano-therapeutic measures by properly-trained persons and witness the actual results thus secured.

THE BALANTIDIUM COLI (STEIN) IN INTESTINAL DISEASES.

The balantidium coli is a normal inhabitant of the large intestine of the hog. It is also occasionally found in the feces of other normal animals, as the dog and cat, but these animals probably become infected by dirt or food previously contaminated by the feces of swine. It is sometimes found in human feces in connection with disease of the intestine, as diarrhea and dysentery, but probably never in the healthy intestine. About thirty instances of infection in man have been reported, mostly from northern Europe, a number from Sweden. Strong

and Musgrave¹ reported a case from Manila. In THE JOURNAL² reference was made to a case described by Solowjew. The parasite is believed by most writers to be accidentally present and, while finding favorable conditions for growth in the diseased intestine, to probably have no etiologic relation to the diarrhea.

This view is opposed by other observers. Strong, Musgrave and Henschen believe in the pathologic importance of the parasite. In most of the cases which have been examined postmortem, lesions have been found which are very similar to those in amebic dysentery. Solowjew demonstrated the balantidia coli in the walls of the colon from a case showing marked dysenteric lesions. He believed that the balantidia, by virtue of their active, independent movement, might penetrate the mucosa, passing between the glands; and reach the mucosa, giving rise to necrosis and ulceration. Strong and Musgrave also demonstrated the parasites in the intestinal wall, most abundant in the submucosa, and penetrating for a short distance between the muscular layers.

Of interest in this connection is the description by Harlow Brooks³ of an epidemic of dysentery caused by the balantidium coli, occurring among the apes of the New York Zoological Park. Five apes were affected with a severe dysentery. Two of the animals died after a few days and the bodies were examined postmortem. The principal changes were located in the cecum, in the lining of which were extensive ulcerations, irregular in contour and with undermined borders. Microscopic sections through the ulcers showed a destruction of the mucous and submucous coats, the floor of the ulcer being the muscular coat; in others the destructive process extended down to the peritoneum. Extensive undermining of the bordering mucous membrane was one of the chief characteristics of the ulcers. Local inflammatory infiltrations were not frequent. The balantidia coli were found in great numbers in the sections, filling the floor and sides of the ulcerations. From the floor and sides of the ulcers, the infusoria extended outward, being found in the muscular coats, apparently penetrating along the course of lymphatic and blood vessels. The parasites appeared to enter the submucosa from the bases of the crypts of Lieberkühn, in which glands they are often present. While the diarrhea was present, the feces of the apes contained the balantidium coli, but as soon as the animals recovered and the stools became formed the infusoria disappeared. Relapses after apparent recovery were frequent and each relapse was accompanied by the presence of the balantidia in the feces. The location of the infusoria deep in the glands of the intestine may explain the difficulty of reaching and completely destroying them, and so the liability to relapse. Brooks has not succeeded in reproducing the disease experimentally, but he has been unable to employ apes because of their expense. These cases in apes

with so many of the clinical and anatomic characteristics of amebic dysentery, are most interesting. The demonstration of the parasite in the intestinal tissues, extending outward in advance of the destructive changes, furnishes as convincing proof of its etiologic relation to the intestinal lesions as do similar demonstrations in the case of the ameba coli in amebic dysentery. Since Stiles has shown the balantidium coli to be very abundant in the feces of pigs in Iowa, it seems likely that cases of infection by it might be observed there. As this infection will naturally occur in the country, the cases will come under the notice of country practitioners, and it is to them that we must look for their detection. It is not unlikely that the more general examinations of feces which seem about to be carried out will disclose cases of infection with balantidium coli in this country.

Brooks' observations also call attention to the fact that the study of disease in the animals most closely related to man may be of much value in helping to clear up certain obscure problems in human pathology.

THE OHIO MEDICAL LAW.

The last issue of *American Medicine* contains an editorial commenting on a recent decision of the Supreme Court of Ohio in which it sees a nullification of the medical practice laws of that state. At the same time it points out that, viewed from this standpoint, it also practically amounts to nihilism in the administrative departments of the government of Ohio. If such is the case, we do not see the necessity of the forebodings of our contemporary. The Supreme Court has, in such case, evidently made a mistake and will utilize its first opportunity to correct it. Court decisions on constitutional questions are not—like the laws of the Medes and Persians—altogether beyond the reach of auto-revision; if the interpretation of the constitution in one case seems to nullify an act of the legislature, it does not necessarily follow that the same result will follow in another. Certainly, the constitution does not commit inevitable suicide by annihilating the executive part of the government. As we read the decision it does not essentially nullify the medical practice act which certainly furnishes standards enough apart from the mere will of the examining boards. Nor can we see how it need necessarily affect the examination provisions of the law. Undoubtedly the quacks and other opponents of medical laws will utilize this decision as much as they are able, but we reserve a serious doubt of their success. It would be a pity if the medical law of Ohio, which has so far worked so well, at least apparently, could be overthrown by the side wind of a decision on an entirely different act. The medical board in that state deserves credit for effectively executing the law, as is shown, for example, in an item in our news columns of last week, in which notice was given of the prospective suspension of one of the medical colleges of the state on account of the rigidity of the preliminary qualifications required. If a medical college—a professional school—can not exist without admitting those who have not even a decent high school education, it ought not to exist. There are, how-

1. Bulletin of Johns Hopkins Hospital, February, 1901, 31.

2. JOUR. A. M. A., Aug. 24, 1901, 518.

3. N. Y. Univ. Bulletin of the Med. Sciences, January, 1902, 1.

ever, many such and they exist and flourish because our state laws too often ignore preliminary qualifications or, it may be, because state boards are lax in the enforcement of the requirements.

HAVANA'S EXCELLENT SANITARY RESULTS.

The published report of Maj. W. C. Gorgas, chief sanitary officer of the City of Havana, is an interesting document. It includes only the period ending Dec. 30, 1900, but in this some of the most striking results of the introduction of proper sanitation into a district where it had been notably neglected were apparent. Aside from the question of yellow fever, the etiology and prophylaxis of which were practically settled during the period, the results with other diseases are also remarkable. Tuberculosis, which during the decade 1890 to 1899, had a mortality of 1683 annually, or 7.5 to each 1000 of the population, was reduced to 5.39 in 1899 and 3.40 per 1000 in 1900. If there could be any doubt as to the effect of proper sanitation on the prevalence of this disease the progressive reduction here produced ought to settle it, supporting as it does the facts given from other localities. It shows, moreover, that conditions, not contagion, are chiefly responsible for its mortality. The fatality of other disorders due to unsanitary conditions was also reduced, enteritis dropped from 1163 deaths in 1899 to 560 in 1900 and typhoid fever from 240 to 90. Yellow fever, on the other hand, not being affected by general sanitation, increased in 1900, largely on account of the immigration of non-immunes, but the demonstration of its method of infection made that year has since enabled the authorities to furnish one of the most striking examples of the control of a pestilential disease afforded in the history of medicine. If the Spanish war did no other good, this result would have been worth all its cost, and more, to the world. It is to be hoped that the incoming Cuban government will continue with like success the sanitary measures instituted by the military authorities during the American occupation. It is what they are bound to do under the conditions enforced as a matter of self-protection by the United States, and the world generally will watch with interest how they meet the responsibility.

THE PARATHYROID GLANDS.

The embryology and physiology of the parathyroid glands have been studied extensively by various observers, but practically nothing is known so far concerning the pathologic changes that may occur in these structures. A beginning is made by Benjamins,¹ however. He finds that in man these glands generally occur in pairs, one on each side, and that they develop probably from the fourth branchial clefts. Kohn and others observed a duct-like passage in connection with the parathyroids; Benjamins regards this duct as analogous to the thyroglossal duct, and he proposes for it the name ductus parathyroideus. It would not be surprising were this duct to become the seat of cystic dilatation in cases of incomplete obliteration, thus forming an additional variety of cyst in the neck. Benjamins noted that the usual regressive changes occur in the parathyroid glands

as in other organs; in a case of general miliary tuberculosis tubercles were found throughout the parathyroids. These structures do not seem to undergo any special or specific changes in goiter. So long as we are not adequately informed in regard to the functions of parathyroid in man, surgeons would act wisely by leaving them behind whenever that is possible in thyroidectomy. They are found mostly on the posterior free margins of the lateral lobes of the thyroid near the branches of the inferior thyroid artery. Experienced observers will probably have but little difficulty in recognizing the parathyroid, but at first it is very difficult, if not impossible, to distinguish them from small lymph nodes, more particularly hemolymph nodes, which may occur in this region. Benjamins fully describes a tumor of parathyroid structure developing in a man of 57. It grew slowly until it reached the size of a child's head, was irregularly nodular, and surrounded by a fibrous capsule. Microscopically, it proved to be of papillary structure, the epithelial cells greatly resembling those of the parathyroid with small clumps of colloid here and there between the cells. Undoubtedly other instances of tumor growth in connection with the parathyroid will be described soon now that attention has been directed to this possibility.

ABILITY AND THE SIZE OF THE HEAD.

The relation of the size of the head to size of brain and correspondingly to the grade of intellect is generally accepted as a fact by the public and to a large extent by scientific men. It has its basis in the well-known facts of microcephaly, but within the reasonable limits of head size as carried by average rational individuals there have been no absolutely certain data for the solution of the question. Some great men have had small heads and vice versa. Professor Karl Pearson, the English mathematical biologist, has attacked the question in a communication to the Royal Society (abstracted in *Nature*, April 10) in his own special way, utilizing the records and measurements of the honor men at the Cambridge University examinations as compared with the average, and also the figures from schools. He considers in these cases the ability as shown in various ways, the judgment of teachers, the results of examinations and the subject's own estimate of himself, and compares these factors with the data as to size and shape of the head, utilizing strict mathematical methods in the investigation. The ultimate result reached by him is that there is no appreciable or necessary relation between ability and the size and shape of the head—that is, of course, within the average range as heads are met with. This finding will, of course, not be conclusive as regards special cases, for there will always be evidence that, exceptionally at least, large cranial and brain development attend marked ability. The mental make-up, moreover, is so complicated that no absolute criterion of ability can be established, the brain balance may fail in some essential point and a "mute inglorious Milton" the result. Indeed, it seems possible that ability in any line is to a certain extent an accident and it may perhaps be occasionally even pathologic. The equal development of brain and its faculties to a very high grade is almost an impossibility, hence the small, well-

1. Ziegler's Beiträge, 1902, xxxi, 143-182.

balanced organ may show better functional results than the larger but somewhere or other less perfectly adjusted one. There is abundant good reason to accept Professor Pearson's result as stating the rule, to which, however, as with other rules, there may be notable exceptions.

Medical News.

CALIFORNIA.

Fatality in Hospital Fire.—The north wing of the King's Daughters' Home for Incurables, Oakland, was destroyed by fire, April 28. Despite the heroic efforts of the matron, nurses and attendants, one inmate was fatally burned and another will probably die from injuries received.

Cooper Medical College Commencement.—On April 29, Cooper Medical College, San Francisco, graduated a class of 25. Rev. Frederick W. Clappett, D.D., delivered the address to the class, and Dr. Albert H. Taylor, the faculty valedictory. The degrees were conferred by Dr. Charles N. Ellinwood.

Illegal Practices and Practitioners.—The jury system seems to work hardships to the efforts of the State Medical Society to punish unlicensed practitioners. In a recent case the jury returned the verdict: "We, the jury in the above-entitled action, hereby agree to disagree."—Sylvester W. Richmond, a "trance-physician" of Los Angeles, was convicted of practicing without a license.—C. J. Schmidt and Genaro P. Iglesias, "worm doctors" of San Diego, who have been in trouble before on account of "knife-plays" and illegal practices, have again been arrested.

Change in Medical Course.—The faculty of the University of California has adopted a new pre-medical course, by the terms of which students will no longer be allowed to receive the degrees of M.D. and B.S. upon the completion of six years in the University, three in the academic and three in the medical department, as heretofore. However, on the completion of the new pre-medical course in the College of Natural Sciences and of the first two years in the medical department students may be granted the degree of B.S. on recommendation of the faculty of the College of Natural Sciences. This change is a result of the reorganization and extension of the medical department, which will no longer allow students who have taken the three years' pre-medical course at Berkeley to be admitted to the school.

COLORADO.

Emergency Hospital, Denver, will be reopened in its permanent quarters at Curtis and Fourteenth Streets about May 15.

Pesthouse Burned.—An incendiary fire destroyed the isolation hospital of Victor, April 24. The loss was \$1200, with no insurance.

New Hospitals at Victor.—The new private hospital of Drs. McKenzie and Welles was formally opened May 3.—The new Teller County Hospital is to be opened to-day.

Gift to Glockner Sanatorium.—Otto Young of Chicago has given \$5000 to the Glockner Sanatorium, Colorado Springs, for the purpose of erecting an addition to the institution, conditional on liquidation of the debt on the sanatorium.

Maternity Hospital Dedicated.—The Denver Maternity Hospital was dedicated with appropriate ceremonies, April 20. Dr. Horace G. Wetherill, president of the Hospital Association, delivered an address in which he explained the need for the establishment of the hospital. Bishop Warren, Rev. R. F. Coyle and Dean Hart of St. Johns' Cathedral participated in the dedicatory exercises.

DISTRICT OF COLUMBIA.

Howard University Graduates.—The Medical Department of Howard University, Washington, held its commencement exercises, May 6, graduating a class of 27.

For an Isolation Hospital.—The district commissioners have received from the Senate district committee a copy of an amendment to the District appropriation bill, intended to be proposed by Senator Gallinger, providing that the commissioners are empowered and directed to acquire Analoatan Island, in the Potomac river, at a cost not to exceed \$125,000, or by condemnation proceedings conducted in accordance with the terms of the act which provided for the securing of an

eligible site for the new city postoffice building. The island is to be the site of the isolation hospital for the District.

To Amend Virus and Serum Bill.—The District Commissioners received, April 21, from the Medical Society, a report by its executive committee inviting attention to a bill pending in Congress to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes (S. 4960 and H. R. 13392). The committee recommends that section 4 of the pending bill, which provides for the promulgation of regulations by the Secretary of the Treasury on the recommendation of the supervising surgeon-general of the Marine-Hospital Service be stricken out and the following inserted in its place:

Section 4. That the surgeon-general of the army, the surgeon-general of the navy, the supervising surgeon-general of the marine-hospital service, the chief of the bureau of animal industry of the Department of Agriculture and the health officer of the District of Columbia be, and they are hereby, constituted a board, with authority, subject to the approval of the Secretary of the Treasury, to promulgate from time to time such rules as may be necessary, in the judgment of said board, to govern the issue, suspension and revocation of licenses for the maintenance of establishments for the propagation of viruses, serums, toxins, anti-toxins and analogous products, applicable to the prevention and cure of diseases of man, intended for sale in the District of Columbia, or to be sent, carried or brought for sale from any state, territory or the District of Columbia into any other state, territory or the District of Columbia, or from the United States into any foreign country, or from any foreign country into the United States: Provided, that all licenses issued for the maintenance of establishments for the propagation and preparation in any foreign country of any virus, serum, toxin, anti-toxin or product aforesaid, for sale, barter or exchange in the United States, shall be issued upon condition that the licentiate will permit the inspection of the establishments where said articles are propagated and prepared, in accordance with section 3 of this act.

Section 5. That the Secretary of the Treasury be, and he is hereby, authorized and directed to enforce the provisions of this act, and of such rules and regulations as may be made by authority thereof, to issue, suspend and revoke licenses for the maintenance of establishments aforesaid, and to detail for the discharge of such duties such officers, agents and employes of the Treasury Department as may in his judgment be necessary.

The executive committee recommends that this bill, amended as suggested above, be indorsed by the Medical Society, and that the executive committee be authorized to take whatever action may be necessary to secure its enactment.

ILLINOIS.

Reckless Extravagance.—At a special meeting of the Litchfield City Council, April 15, the members of the Board of Health were granted a salary of \$2 for each meeting, the salary not to exceed \$10 a year.

Appalling Prevalence of Abortion.—At the meeting, May 1, of the Livingston County Medical Society resolutions were adopted, that it regarded the crime of feticide as cowardly murder, that it was determined to bring to justice the perpetrators of this crime and that it strongly deprecated all means taken to lessen the birth-rate.

Personal.—Dr. J. W. Robinson, Atlanta, has located in Tonica.—Dr. Marcus S. Fletcher, Ridge Farm, has been appointed physician of Vermilion County to succeed Dr. William A. Cochran, Danville.—Dr. I. W. Blake, Rock Falls, has moved to Ladysmith, Wis.—Dr. Samuel A. Graham, Waynesville, has been appointed to the staff of the Illinois Eastern Hospital for the Insane.—Dr. Ralph Hanson, Lewistown, has moved to Spokane, Wash.; Dr. Samuel A. Oren, Lanark, succeeds to his practice.

Blessing Hospital Staff Named.—The annual meeting of the staff of Blessing Hospital, Quincy, was held April 30. Dr. Levin H. A. Nickerson was elected president, and Dr. Edmund B. Montgomery, secretary. The following were elected to the staff: Physicians—Dr. Ernst Zimmermann, attending; Drs. Henry Hatch and John H. Rice, consulting; surgeons—Dr. Robert J. Christie, Jr., attending; Drs. Edmund B. Montgomery and William W. Williams, consulting; gynecologists—Dr. Sarah Vasen, attending; Dr. William S. Knapheide, consulting; obstetricians—Dr. Melinda C. K. Germann, attending; oculists and aurists—Dr. Frederic M. Pendleton, attending; Dr. Frank E. Tull, consulting; anesthetizer—Dr. Clarence A. Wells; advisory board—Drs. Levin H. A. Nickerson, Edmund B. Montgomery and John H. Rice.

Chicago.

New Building for Dunning.—The county board decided, May 3, to erect a building for general purposes at Dunning, to cost \$20,000. The building will accommodate 100 patients.

Osteopath Fined.—A Chicago osteopath named Young, was fined \$25 at Valparaiso, Ind., May 1, for violation of the state

law requiring a license to practice medicine. An appeal to the Circuit Court was taken.

Hospital for Aged Jews' Home.—Mrs. Morris Rosenbaum has donated \$25,000 to the Home for Aged Jews, to be spent in the erection of a fireproof 40x60 hospital, which will be outfitted by the daughter of Mrs. Rosenbaum.

Dowieite Elder Seeks Vaccine.—The object lesson of smallpox in "Zion" has apparently had a salutary effect on the *ci-devant* anti-vaccinationists of the Dowie cult. On April 29 Dr. Speicher called on the Health Department for protection from a case of smallpox on the South Side, near a colony of Dowieites.

Colonel Wilcox Transferred.—Lieutenant-Colonel Timothy E. Wilcox, chief surgeon, Department of the Lakes, Chicago, has been ordered to Vancouver Barracks, Washington, for duty as chief surgeon, Department of the Columbia. He will be succeeded by Lieutenant-Colonel C. L. Heitzman, who is now on his way home from the Philippines.

Public Health Good.—Aside from scarlet fever the public health conditions are fairly satisfactory and a continuous decrease of mortality during the next two months is anticipated. The highest number of deaths, 19, from scarlet fever during the present epidemic was reported last week. With inadequate hospital facilities and the carelessness of too many parents, and even of physicians, in the matter of isolation and disinfection there is little prospect of the epidemic subsiding until the material is exhausted.

Death Rate Lowered.—For the second time this year the Department of Health reports the total deaths recorded as fewer last week than for corresponding weeks of last year and for the first time since May 15, 1897—nearly five years—no death was reported from typhoid fever. The total deaths last week numbered 504—an annual death rate per 1000 of 14.44—being 46 fewer than the week previous and 62 fewer than a year ago. These figures represent a decrease in the death rate per 1000 of 8.2 and 13.8 per cent. respectively.

The Recommendation Supply Waning.—During the past week only four recommendations have been added to those heretofore chronicled as emanating from the officers-of-the-day at the County Hospital. These are: 1. That a bulletin board be established for announcing unusual and interesting cases treated by internes, that other internes might discuss the cases and criticize the treatment. 2. That a wardrobe be established to provide clothing for needy persons dismissed from the hospital. 3. That the city establish an especially-constructed hospital for contagious diseases, which could be so operated as to pay expenses. 4. That Recommendation 3 be carried out.

Nurses' Convention.—The fifth annual convention of the Nurses' Associated Alumnae of the United States adjourned, May 3, after electing Miss Mary Riddle, Boston, president; Misses Harriet Fulmer, Chicago, and Sarah Rudden, Philadelphia, vice-presidents, and re-electing Miss Tamar Healy, Brooklyn, treasurer, and Miss Mary E. Thornton, New York, secretary. One of the most important matters considered was the securing of legislation providing for the registration of nurses and their recognition by the state. Already two states are organized for such effort with the legislatures—New York and Illinois—and the result of the report and discussion at this meeting will probably be similar organization in other states. This will mean in time the establishment of a universal curriculum and an extension of the course of study from two years to four in all training schools.

Spectacle-Fitting Not Practice of Medicine.—The Appellate Court of the Second District of Illinois, in the case of *Smith vs. People*, has decided that an itinerant oculist and spectacle-fitter is not engaged in the practice of medicine. The appellant advertised as the "Great Chicago Eye Expert," and his advertisements also contained the following: "If you have blurring, dizziness, neuralgia, headaches, spots before the eyes, inflammation, granulation, winking, trembling spells, cataract, burning and smarting of the eyes, various brain affections entailing not only positive injury to the sight, but untold misery, call immediately." The court reasons that this is not the practice of medicine; "the defendant did not cure any of these ailments, that whenever his patrons ceased using the glasses defendant had supplied to them, their prior troubles returned." The case has been carried to the Supreme Court.

INDIANA.

Union Hospital Staff Feasts.—The annual banquet of the staff of the Union Hospital, Terre Haute, was given, April 24. Dr. Stephen J. Young officiated as toastmaster.

Greene County Medical Board was reorganized at Switz City, April 17, with Dr. Elmer Shirts, Lyons, president; Dr. James E. Tallbot, Linton, vice-president, and Dr. C. B. Mallott, Linton, secretary.

The Physicians' Defense Company has filed articles of incorporation at Fort Wayne, showing a capital stock of \$100,000. Its purpose is to aid and protect members of the medical profession from prosecutions in civil malpractice suits. The company will contract to defend physicians for a certain consideration for a certain period.

Medical College of Indiana Commencement.—The thirty-second annual commencement exercises of this institution were held at Indianapolis, April 24. The address of the evening was delivered by Rev. George Harris, LL.D., president of Amherst College, who spoke on "Ideals and Progress." Hon. Addison C. Harris, president of the University of Indianapolis, then conferred degrees on a class of 75.

Ober a Fugitive.—Dr. George McD. Ober, who conducted a so-called medical institute in Indianapolis until last winter, when he was arrested, charged with practicing medicine with a fraudulent license, and who afterward went to Madison, where, at the instigation of the Jefferson County Medical Society, he was again arrested on a similar charge and released on bonds, failed to appear for trial. Judge Bear of the Circuit Court thereupon spoke of the numerous complaints of the citizens in various parts of the county of the manner in which the defendant had served them, they claiming that Ober would agree to bring about a cure for \$50 and would take their note for the amount negotiable at a bank and leave a bottle of medicine and never be seen by them again and would sell their notes. He said the citizens of the county were entitled to protection from such traveling doctors, that the able physicians of the county, who had paid out large sums of money in fitting themselves up for this important duty, were also entitled to protection, and that no one should be entitled to practice in this territory unless he were legally licensed. He thereupon ordered that Ober's bond be raised to \$500, a new warrant issued for his arrest, and the case continued until the next term of court.

IOWA.

Drake Medical College, Des Moines, held its commencement, April 21, graduating a class of ten. Chancellor W. B. Craig of the university conferred the diplomas.

Dr. Middleton's Will.—The will of the late Dr. William D. Middleton, Davenport, has been filed for probate. It leaves his entire estate to his wife, who is made sole executrix without bond.

Sioux City College of Medicine graduated a class of ten at its twelfth annual commencement, April 30. Dr. William Jepson delivered the doctorate address, and Dr. George W. Beggs, president of the board of trustees, presented the diplomas to the class.

Personal.—Dr. Harry J. Watson, late of Ottumwa, has been placed in charge of a brigade hospital in the Philippine Islands. He has recently been recommended for promotion for distinguished bravery.—Dr. Allen L. Bryant, Marshalltown, has moved to La Moille.—Dr. Charles L. Stubbs, La Moille, will locate near Walla Walla, Wash.—Dr. John P. Harrel has been appointed health officer and city physician of Burlington.

Will Build.—The board of regents of the University of Iowa held its annual meeting at Iowa City, April 5. It was decided to erect a medical building to cost \$200,000 on property given by the citizens to the university several years ago if reasonable prices for land desired could not be obtained. To locate the medical building thus will close up a street that has been kept open by the university.

MARYLAND.

Baltimore.

Endowment Fund Increased.—At the meeting held, May 2, to increase the Johns Hopkins endowment fund, \$60,000 was contributed.

Fraternity Reunion.—The annual reunion of Maryland Chapter Alpha, of the Phi Beta Kappa Society, was held at Baltimore, May 2.

Reunion and Banquet.—The University of Maryland class and hospital staff of 1892 held a reunion and banquet May 3. Dr. John Turner being toastmaster.

Banquet.—The second annual banquet of the Alumni Association of the Baltimore Medical College was held, April 28.

about 200 attending. An address was delivered by Dr. Robert W. Johnson. The alumni gold medal for the best thesis was presented to Dr. Arthur P. Herring.

The Maryland Woman's Quarter Club is meeting with success in collecting subscriptions for the building of a sanitarium for consumptives in the mountains of Western Maryland. The subscription books will be gathered in May 14. About \$1400 is now in hand, and 1000 new subscription books have been issued, returnable November 15.

Health Wardens.—The health commissioner appointed the following as health wardens: Drs. F. Caruthers, J. A. Schulte, C. M. Schulte, Thomas Sudler, F. A. Sauer, A. C. Hearn, A. S. Gage, J. W. France, H. T. Westbrook, J. F. Hempel, Claude Van Bibber, T. L. Richardson, D. S. Williams, A. G. Barrett, J. L. Ridgely, M. K. Warner, C. F. Flautt, R. A. Warner, M. G. Smith, H. J. Hahn, E. C. Garee, A. T. Chambers, H. Lee Franks, and L. J. Turlington.

Library of the Medical and Chirurgial Faculty.—The annual report shows a very prosperous condition of the collection. During the year the additions have been 926, including 100 rare old volumes purchased abroad by Dr. Osler and the Upton Scott collection of 114 volumes presented by Dr. Clotworthy Birnie. There are 144 journals regularly received. There have been 3897 readers during the year, and 2057 books loaned out to 229 members. This now really valuable collection of 14,000 volumes is becoming the constant resort of a large number of the profession, not only of Baltimore, but of Maryland, and the comfortable Frick quarters with the easy chairs and the long oaken tables are a great boon to many. The benefits derived are seen in the improved character of the papers read before the local societies and published in the journals. From statistics it appears that this library is attended and used as much as others of much larger size.

University of Maryland School of Medicine.—The graduates of the University of Maryland School of Medicine, 76 in number, have been announced. Dr. A. M. Shipley won the gold medal. The following appointments have been made: Assistant resident physicians—M. L. Price, M. R. Thomas, and B. B. Ranson; assistant resident surgeons—Nathan Winslow, A. M. Shipley, H. L. Rudolph, and S. R. Donahoe; assistant resident gynecologists—M. V. West and J. F. Hanes; assistants at Bayview Asylum—Charles D. Grover and Philip L. Traverse. The meeting of the Alumni Association was held May 2, the address being by State Comptroller Hon. Joshua W. Hering, M.D., class of 1855. Dr. John T. King was elected president for the ensuing year. A badge was adopted and a committee of ten appointed to make arrangements for the centennial of the university, which will occur in 1907. The annual commencement was held May 5, Governor Montague of Virginia being the orator.

MASSACHUSETTS.

Alleged Doctor Fined.—Edward E. Willard, colored chiropractor, was found guilty of the unlawful practice of medicine at North Adams, April 30, and was fined \$100, or in default will serve four months in jail.

The Lynn Medical Fraternity tendered a complimentary dinner, April 30, to Dr. William S. Gottheil of New York City, who addressed the fraternity on "Diseases of the Skin, and Syphilis," illustrated by stereopticon.

Harvard Medical School.—Harvard College has now entered into formal possession of the site for its new medical school. The title is taken by the president and fellows of the institution, and the consideration given is \$606,008. The land which comprises the site of the new medical school was conveyed to the trustees representing the college in August, 1900. It is a very large tract, comprising 1,128,824 feet of land.

Hospital Appointments.—Franklin County Hospital Medical Board has elected Dr. Augustus C. Walker, president; Dr. Enoch G. Best, vice-president, and Dr. Benjamin P. Croft, secretary and treasurer, all of Greenfield.—Dr. Charles A. Shackford has been re-elected chairman, and Dr. J. E. Blaisdell elected secretary of the medical board of Frost Hospital, Chelsea.—Dr. J. Clark Hubbard has been elected superintendent of the Holyoke City Hospital, vice Dr. Charles O. Carpenter, deceased.

Changes in Faculty of Tufts Medical College.—New appointments on the faculty and boards of institution of Tufts College Medical School, Boston, are as follows: Edward O. Otis, M.D., professor of pulmonary diseases and climatology; Francis D. Donoghue, M.D., instructor in clinical surgery; Henry S. Warren, M.D., assistant in orthopedic surgery; J.

Sheppard May, M.D., assistant in clinical medicine and obstetrics; Charles H. Winn, M.D., Arthur W. Fairbanks, M.D., John P. Treanor, M.D., and H. F. R. Watts, M.D., assistants in clinical medicine; James W. Hinckley, M.D., assistant in obstetrics; L. Mary Belle Holt, B.L., assistant in anatomy; Florence Gilman and Frank H. McElroy, assistants in general chemistry; Arthur H. Makechnie and Walter W. Kingsbury, assistants in medical chemistry and toxicology; Freeman A. Tower, assistant in physiology, and John A. Whittle, assistant in histology.

MICHIGAN.

The Honored Dead.—The board of control of Lansing City hospital has passed resolutions regarding the death of Dr. Charles N. Hayden, Lansing.—The physicians of Berrien County met at Benton Harbor, April 10, to pay tribute to the memory of Dr. John Bell of Benton Harbor.

Michigan College of Medicine, Detroit, held its fourteenth annual commencement, April 24, graduating a class of thirteen. Rev. John McCarroll, D. D., delivered the address to the class on "Medicine, Law and Religion." Dr. Lewis E. Maire presented the class to Dr. William I. Hamlen, who administered the Hippocratic oath and presented the diplomas; Dr. John F. Bennett delivered the doctorate address, and Dr. Abram Goodfellow the valedictory.

NEW YORK.

The Stony Wold Association, which has for its object the establishment of a sanitarium in the Adirondacks for the treatment of as many as possible of the 20,000 tuberculosis sufferers in the tenement districts, in its first year has raised more than \$50,000 for the furtherance of this object.

New State Hospital Needed.—Owing to the overcrowded condition of the State hospitals and the yearly increase in the number of patients, it is more than likely that a new hospital will be planned, and the district to be selected will undoubtedly be that including Saratoga, Washington, Essex, Clinton and Warren counties. The Commission in Lunacy will possibly this summer examine into the availability of any sites offered in the counties mentioned and bring the matter to the attention of the legislature of 1903.

Nurses' Movement for Registration.—The New York State Nurses' Association completed its organization at the annual meeting in Albany, April 15: The officers elected are: President, Miss Isabel Merritt, Cherry Valley; vice-presidents, Miss Julia Bailey, Rochester, and Miss E. J. Keating, Buffalo; secretary, Miss E. C. Sanford, Rochester; treasurer, Miss Mary Brooks, Saratoga. The society is now ready to consider seriously the question of legislation for registration, which will ultimately place training schools for nurses under the supervision of the regents, establishing thereby a more uniform basis of nursing education in the state, and eventually making trained nursing a recognized profession. The nurses of Illinois and New Jersey are already organized for this purpose, with Colorado, North Carolina, Pennsylvania and Massachusetts agitating. The movement is also strong in England.

New York City.

Tragedy in a Physician's Family.—The 2-year-old baby of Dr. M. B. Lewis, East Hampton, picked up from the floor of its father's office some strychnin pills that had been dropped and swallowed them. The child died as its father reached home.

Bellevue Training School Loses Superintendent.—Miss Agnes S. Brennan, superintendent of the Bellevue Training School for Nurses, after having been connected with that institution for about twenty years, has resigned in order that she may take a long and much-needed vacation. Her successor is Miss Delano.

Commitment of Insane to Bellevue Hospital Illegal.—An order has been issued from the special term of the Supreme Court directing the release of one Peter McKenna from confinement in the Manhattan State Hospital, on the ground of illegal commitment. The decision is of importance, because it makes the present procedure of commitment to Bellevue Hospital illegal.

Medical Student a Suicide.—Daniel D. Rosenberg, a young medical student in his third year at the College of Physicians and Surgeons, was found dead in a bathhouse, having swallowed carbolic acid and inhaled illuminating gas. His health had failed after an attack of appendicitis, and various complications had undermined his health, and in a fit of despondency he ended his life.

Reception to Dr. Lange.—A reception to Dr. Frederick Lange, who sails for Europe May 15, was given May 2, by his friends, all of whom had earned academic degrees in Germany. According to the customs of old "color-students" the banquet was an old-fashioned "Kommers." Dr. Lange intends to settle near Loukoisz, West Prussia, to take charge of his estate there, which is an heirloom in his family.

A Modern Day Nursery.—The Virginia Day Nursery, the oldest place of its kind in this city, has just moved into a beautiful new building at 632 East Fifth Street. The structure is fireproof, is well supplied with light and air, has cement floors and white enamel furniture, a ventilating room for the children's clothes and two playgrounds on the roof, an open one for nice weather and one enclosed in glass for cold or wet days.

Dr. A. Jacobi Retires from Professorship.—After thirty-two years of active teaching, Dr. A. Jacobi, at the ripe age of 72, retires from the College of Physicians and Surgeons, full of years and honor. In 1860 the first chair of diseases of children was established in America, in the New York Medical College, with Dr. Jacobi as professor, and in 1865 he became clinical professor of that subject in the College of Physicians and Surgeons.

Buffalo.

The Buffalo Ophthalmological Club has been organized.

Bed Endowed.—The Transportation Club of Buffalo has given \$1000 to the Buffalo General Hospital for the endowment of a bed.

The consumption hospital which was built to replace the one destroyed by fire two years ago is completed. The building cost \$49,900, and its equipment \$5000 more. It has accommodations for 54 patients, which can be increased to 70. The building is two stories in height.

Emergency Hospital Changes.—Dr. J. H. Dewees, house surgeon, has resigned and will practice in Buffalo. Dr. Charles Southworth, medical officer, becomes house surgeon. Dr. McKay Hull, ambulance surgeon, is made medical officer. Dr. Gallagher, a recent graduate of the University of Buffalo, will be made ambulance surgeon.

University of Buffalo Commencement.—The fifty-sixth annual commencement of the medical department of the university was held May 2. Dr. John Parmenter presented the class, which numbered 38, to Chancellor, the Hon. James O. Putnam, who conferred the degrees. Dr. Matthew D. Mann administered the Hippocratic oath. Rev. David J. Burrell, D.D., New York, delivered the address on "The Doctor's Creed."

PENNSYLVANIA.

Crusade Against Unregistered Doctors.—A crusade against unregistered physicians in Allegheny county has been begun. There are 112, it is said, all of whom are to be prosecuted.

Gift to Sanitarium.—After visiting the White Haven Sanitarium of the Free Hospital for Poor Consumptives and seeing for himself the admirable work which is being done there in behalf of sufferers from tuberculosis, Henry Phipps, a member of the Carnegie Company, presented the Hospital with \$2500.

Epidemic Disease.—Homestead has from 150 to 200 cases of typhoid fever, for which the Monongahela river water is blamed.—Clifton has so serious an epidemic of scarlet fever and has paid so little attention to sanitary precautions that the State Board of Health has threatened to place the entire town in strict quarantine.

Philadelphia.

Samaritan Hospital's Corner-Stone Laying.—Interesting exercises characterized the laying of the corner-stone of the new building for the Samaritan Hospital, at Broad and Ontario streets, May 3. Addresses were made by Rev. Floyd W. Tompkins, D.D., Rev. Russell H. Conwell and others.

The commencement exercises of Jefferson Medical College will be held in the Academy of Music, May 29. The Alumni Banquet will take place the previous evening at the Art Club. The Commencement exercises of the Medico-Chirurgical College occur May 24 at the same place. The Rev. Dr. Harris, President of Bucknell College, will deliver an address.

Reception at Medico-Chirurgical Laboratories.—The informal opening of the new laboratory of the Medico-Chirurgical College took place May 1. Ex-Justice Paxson, president of the Board of Trustees, and Professor E. J. Houston, Professor L. Webster Fox, chairman of the Building Committee, and the deans of the various departments delivered short addresses.

All the faculty and a large number of the students and their friends were present and inspected the handsome and well-equipped building. The new building has 100 feet front on Cherry Street and 78 feet on Eighteenth Street, and is five stories high. On the fifth floor is the anatomy and histology laboratory. On the third, chemistry; second, dental dispensary; first, general medical and surgical dispensaries. The basement will be furnished as a gymnasium, college club and reading rooms. The chemical laboratory is said to be one of the finest in the United States. The building has cost, so far, more than \$125,000, and still more must be expended on it before it is opened for the students in the fall. Arrangements have been made to give instruction to 700 students in the three departments.

GENERAL.

For Indian Service Physician.—A civil service examination will be held in St. Louis, June 3, for the position of physician in the Indian Service. From the eligibles resulting from this examination it is expected that a vacancy at White Earth Agency in Minnesota will be filled, at a salary of \$900 per annum.—*St. Louis Republic.*

National Health Bill.—The Senate Committee on Public Health and National Quarantine directed a favorable report upon the Perkins Bill Monday, after very careful consideration. This is the bill making the U. S. Marine-Hospital Service a National Board of Health. Some few amendments were made, which did not affect the value or character of the bill.

Smallpox.

Illinois: Springfield has at present 12 houses under quarantine and 24 patients at the isolation hospital.

Chicago: Through the statement of the smallpox situation published in the latest issue of the United States public health reports, the Chicago health department is enabled to show the result of the campaign against this disease, begun last February, in the 600,000 square miles, and among the 25,000,000 inhabitants of the territory immediately tributary to Chicago. The statement covers the 17 weeks between Dec. 28, 1901, and April 25, 1902.

At the preliminary conference of railway managers and surgeons held at the instance of the commissioner January 31, it was shown that in the thirty days following Dec. 28, 1901, there had been an increase, compared with the corresponding period of 1900-1901, of more than 900 per cent. in the number of cases of smallpox reported in the group of 10 states of which Illinois is the southern center. In the remaining 33 states and territories reporting, the increase was only 26 per cent.

Between January 31 and April 25 of this year the statement shows a total of 10,598 cases reported in the Chicago territory, as against 10,464 during the corresponding period a year ago—an increase of little more than 1¼ per cent. during the last 13 weeks, as compared with the 911 per cent. increase of the first four weeks.

That this marvelous reversal of figures is due to the work so intelligently and vigorously prosecuted by the railway managements and many of the health authorities is demonstrated by the fact that during this last period of 13 weeks there have been reported 7901 smallpox cases in the remainder of the country outside the field of this work, as against 6793 cases last year—an increase of 16 per cent.

The commissioner tenders his congratulations to those who have made this showing possible by their co-operation in carrying out the details of the plan formulated at the January meeting—the essence of which was a propaganda of true vaccination, as defined in the "Vaccination Creed" of the department.

Only five new cases of smallpox were discovered in the city last week, three of them being imported from Des Moines, Iowa, Whiting, Ind., and Oak Park, Ill., respectively. During the week 17 were discharged, recovered, from the Isolation Hospital, and 33 remain under treatment. Between January 1 and April 26 there were 153 cases in Chicago, with one death.

Indiana: A railroad contractor's camp, at Grant, has been quarantined on account of two cases of smallpox.—The health authorities of Terre Haute have decided to prosecute physicians who fail to comply with the law in regard to smallpox cases. Several instances of such violation have come to the notice of the board and it is felt that an example should be made of the offenders.

Pesthouses were denounced by Dr. Newton A. Wagner, Indianapolis, at the smallpox conference recently held there. He said that he had been all over the country and had not seen a pesthouse fit to keep a sick dog in. No one would want

his wife or children to be confined in a pesthouse with a lot of dirty, lousy vagrants.

Iowa: Several additional cases have appeared in Davenport.

Kentucky: The Kentucky State Board of Health, at a meeting April 25, decided that, unless the Indiana health authorities take prompt and vigorous measures to stamp out smallpox, which is now prevalent in that state, it would establish a quarantine at the Ohio river and allow no one to cross to the Kentucky side unless vaccinated. The meeting was the result of a conference at Indianapolis yesterday between the Indiana and Kentucky boards of health, at which nearly all the health officers from the former state were present. The situation, as shown by yesterday's conference, is most alarming. In 60 of the 92 counties in Indiana, smallpox is prevalent, and in one county—Delaware—there are said to be 500 cases of the disease. To make the situation worse the Indiana State Board of Health is entirely without funds to attempt to prevent its spreading, and the state has no "epidemic fund," as is provided for by statute in Kentucky.

Maryland: A man suffering from smallpox was taken to quarantine April 29. The health commissioner estimates that each case of smallpox costs the city nearly \$300. The case must be taken to quarantine, and there fed and nursed. His bedding and clothing must be burned and replaced. The house must be quarantined and a guard stationed there. Those in the house must be fed, and all in contact with the case provided with new clothes, so that those worn may be burned.—Smallpox has broken out among the soldiers at Fort Howard, at North Point on the Patapsco, below Baltimore, a case developing May 1.—Dr. C. L. Cunningham, Cresaptown, has the smallpox, having contracted it at Pinto, where there are nine cases.

Massachusetts: In the case of J. H. Muford, East Boston, summoned for refusal to allow his child to be vaccinated, the defendant was found guilty as charged. The case was appealed to the Supreme Court.—Two new cases have appeared in Athol. Neither patient had been vaccinated.

Michigan: Smallpox was present at 126 places in the state during the week ended April 19.—At Ionia, only six cases now remain, all of which are strictly quarantined.

Minnesota: Seven cases were discovered at South Stillwater, April 28.

Missouri: Foreman A. H. Boles of H. F. Balch & Co., contractors for the Colorado railroad, with 14 of his men, will be arrested Wednesday and brought to Jefferson City for trial for again refusing to obey the quarantine regulations of the county board of health. County Physician Dr. J. L. Thorpe stated that all in the quarantine district had been vaccinated except Boles and his force, and that warrants would be issued at once for them. Boles and three of his men were fined a few days before for refusing to obey the quarantine regulations, but they returned to work, defying the order of the board, and they will again be arrested for this offense.—Greene County now has 18 cases under quarantine.

Nebraska: Reports have been received at West Point from Lincoln township that the inhabitants of that community are having a serious siege of smallpox. All persons living in the stricken district have been ordered vaccinated and all families are under strict quarantine.

The smallpox report for the week ended April 26 shows but 45 cases of the disease in the emergency hospital at Omaha and throughout the city.

New York: The State Department of Health Bulletin reports smallpox in the Adirondacks as follows: At Old Forge and Partlow, Herkimer County, 5 cases; Tupper Lake and Dickinson, Franklin County, 25; Hopkinton and Edwards, St. Lawrence County, 16; Crogan, Lewis County, 2; Newcomb, Essex County, 4; Champlain, Chazy, Plattsburgh and Saranac, Clinton County, 8, and 4 or 5 in the towns of Albion and Richland, Oswego County—about 75 cases in all. During April 5 cases occurred at Mt. Vernon, Tarrytown, Mamaroneck and Islip, near New York City; 12 cases have developed in Albany and 2 at Troy, and 1 at Auburn.

Olean reports 4 cases and Islip, Long Island, has several cases.—Between January 1 and April 26 there were 895 cases of smallpox in New York City, with 175 deaths.

Pennsylvania: Pittsburg now has more patients than at any time during the past year. The patients now number 38.

South Dakota: Oldham has 15 cases in town and a number in the surrounding country. Quarantine is contemplated.

Canada: The Montreal *Sun* makes editorial comment on the value of vaccination as follows: The great value of vaccination has been proved in a striking manner by a report, issued by the Medical Health Officer, as to the outbreak of

smallpox in this city. The disease broke out last autumn and from that date till April of this year there have been over three hundred cases of smallpox. Of this entire number only three had good vaccination marks on their arms. In fact only 1 per cent. of those who have been vaccinated contracted the disease. Could anything be more striking than this? The outbreak has cost the city tens of thousands of dollars, and besides this valuable lives have been sacrificed; and the cause of this is entirely due to the antipathy, on the part of unnumbered persons, against vaccination. Surely the history, as to wonders vaccination has worked during the past century and a half ought by this time to have impressed the entire civilized world with the truth that vaccination is a direct preventive against one of the most dreadful scourges that afflict humanity.

Porto Rico: There are about 150 cases of the disease at Arecibo at present, and an effort will be made to quarantine all as soon as discovered. It is thought that it will be impossible to get the epidemic under control until all cases are isolated. The hospital was finished April 22, and has a capacity of 60 beds. A building next to the regular hospital will also be used as a varioloid hospital. It will accommodate 26 patients.

CANADA.

An Editor's Resignation.—It is understood that Dr. H. B. Anderson has handed in his resignation as editor of *The Canada Lancet*.

Winnipeg General Hospital.—The number of patients treated in the Winnipeg General Hospital during the week ending April 26 was 218, of whom 133 were men, 58 women and 27 children.

Personal.—Dr. Dryer has been added to the hospital staff of the City Hospital, Vancouver, B. C.—Dr. Rose, who has been house surgeon at the St. Boniface Hospital, Winnipeg, for the past year, has commenced practice at Gladstone, Man.

Western University, London, Ontario.—The results of the examinations in the Medical Faculty of the Western University at London, were posted on May 1. Fifteen will receive the degree of M.D. The past session has been a successful one and has given great satisfaction to the faculty.

Compulsory Vaccination.—The Provincial Board of Health of Quebec has again called upon the City of Montreal to pass the obligatory vaccination by-law under compulsion of a heavy fine. It is understood that Alderman Ames has one ready, which will shortly be brought before the city council.

Undesirable Immigration.—The Canadian Immigration Act is being amended to provide for the prohibition of certain diseased immigrants. The clause reads: "Such prohibition may be absolute or may be accompanied by permission to land for medical treatment only, for a period that may be determined by the order or proclamation."

Mortality of Infants in Montreal.—During July and August of last year there were times when two hundred babies died per week. In order to prevent a repetition of this excessive mortality steps are being taken to organize a local society for the purpose of instructing young mothers as to the care of their infants. Dr. Laberge, the medical health officer, will take a prominent part in this movement.

Dalhousie University, Halifax.—Convocation at Dalhousie University was held on the afternoon of April 29. The past session has seen the largest class in medicine in the history of the university; 27 young gentlemen received their M.D. and C.M. degrees. Mr. A. R. Cunningham, a son of Dr. Cunningham of Dartmouth, N. S., won the gold medal in the primary examination, while Mr. S. A. Fulton of Truro received the gold medal in the final.

Two New Sanitariums.—As a result of the recent tuberculosis conference held at Ottawa, two gentlemen have offered to build two sanitariums at their own expense. One is Sir William Macdonald of Montreal, and the institution will probably be situated in the neighborhood of that city; the other is the newly-elected president of the association, Mr. W. C. Edwards, M. P., of Ottawa, whose sanitarium will be in the neighborhood of the capital.

A Montreal Physician Honored.—Dr. James Stewart, who holds the Chair of Medicine and of Clinical Medicine at McGill University, has been elected president of the Association of American Physicians, which met in Philadelphia, recently. Dr. Stewart is a graduate of McGill and a licentiate of Edinburgh. He was professor of materia medica at McGill from 1883 until 1891, when he was promoted to the chair which he at present holds.

Samaritan Free Hospital, Montreal.—The annual meeting of the Samaritan Free Hospital for Women was held last week in Montreal. The past has been a prosperous year. One hundred and thirty-three patients received treatment, an increase of twenty over the previous year. Outside the hospital two hundred patients were supplied with remedies and advice. Of the total number treated, there were five deaths, a decrease in comparison with the previous year. According to the report of the treasurer the year commenced with a balance of \$455.52. The receipts amounted to \$3,733.74, while the expenditure was \$3,149.75.

A Deadlock Re Civic Hospital, Montreal.—Montreal does not seem to know where it is at with regard to the erection of a new contagious diseases hospital. A short time ago it was given out that the matter had been finally and ultimately adjusted, but the archbishop would not accept for the Catholics a single institution; so now there is a proposition before the city council to the effect that the Notre Dame Hospital and the Royal Victoria Hospital erect smallpox hospitals and receive a stated sum per annum for the care of such patients. The hygienic committee will make no recommendations until the above is settled by the city council.

FOREIGN.

Suit Against a Russian Surgeon.—Dr. Modlinski was condemned by the court at Moscow to seven days' imprisonment for performing an operation without the consent of the patient. He appealed to a higher court, which has confirmed the sentence.

Death of Hans von Hebra.—The famous professor of dermatology at Vienna, Hans von Hebra, died in that city, April 13, in his fifty-fifth year. He was the worthy son of the founder of the chair of dermatology at Vienna, Ferdinand von Hebra, and was the author of more than 30 articles and works, principally on this specialty.

Nature-Healer Endowment.—The will of a recently deceased official at Vienna bequeaths \$100,000 for the construction and endowment of a nature-healing sanatorium. Only nature-healers are to be in charge and all graduated physicians are to be excluded. The authorities at Steiermark, where the sanatorium is to be erected, have made no objections, but the local physicians have entered a formal protest against the project and appealed to the Minister of the Interior.

The Riberi Prize.—The Turin Academia di Medicina announces that the Eleventh Riberi Prize of about \$4000 will be awarded for the best work produced during the years 1902-1906 in the field of the medical sciences. Other points being equal, the preference will be given to works which have in view the amelioration of the hygienic conditions of Italy. Competing works must be in French, Italian or Latin, and must be received by the secretary, B. Silva, before the close of 1906.

Other Deaths Abroad.—Vienna has also lost J. Habart, who died, April 19. His name is best known by his works on military surgery. The death is reported of Dr. G. Inzani, professor of pathologic anatomy at Parma; B. Robert, professor of clinical medicine at Barcelona; H. Schobl, professor of ophthalmology at Prague; E. Fazio of Naples, editor of the *Rivista Internazionale d'Igiena* and author of numerous works on hygiene and bacteriology. The Paris medical school has also sustained a severe loss in the death of B. Rendu, professor agrégé, whose name is familiar to the readers of current medical literature.

Thomas Moore Madden, M.D. (Hon. Causa) Texas Med. Col., M.R.C.P. Ire., F.R.C.S. Edin., M.R.C.S., Eng., who was for many years one of the prominent practitioners of Ireland, died April 16, at Tinode, aged 64, after a long illness. He had served as attending physician to Rotunda Lying-in Hospital, and Mater Misericordiae Hospital, consultant to the Children's Hospital and National Maternity Hospital; vice-president British Gynecological Society, president of the Obstetrical Section of the British Medical Association, Fellow of the Obstetrical Society of Edinburgh, corresponding member of the Gynecological Society of Boston, examiner at Queen's University of Ireland, Royal University of Ireland, Royal College of Surgeons in Ireland and Apothecaries' Hall of Ireland, etc. He was the author of numerous books and other contributions to medical literature and as well some historical and literary works. He was a highly-esteemed and honored surgeon and a popular teacher. His personality will long be missed from Dublin medical circles.

Von Leyden's Anniversary.—The Germans celebrated Von Leyden's 70th birthday with much ceremony, April 20. The

session of the Congress of Internal Medicine at Wiesbaden, April 16, was an actual Leyden festival. His efforts in founding the Committee of Cancer Research, in promoting the founding of sanatoria for consumptives and his well-known achievements in the pathologic anatomy of spinal affections and multiple neuritis have carried his fame far and wide. His name is connected with that of Charcot in the Charcot-Leyden crystals; he has devoted immense energies of late years to the development of hygieno-dietetic therapeutics. The celebration of his birthday was not confined to the profession and the appreciation of official and lay participators, as one exchange remarks, is an encouragement for all humble practitioners to live up to their high ideals as preachers and promoters of hygiene and protectors of the public welfare. An endowment was founded in Leyden's name for the encouragement of medical research, another for seaside sanatoria for children and a third for a foundling asylum. A portrait bust was also unveiled, to be placed in the grounds of the Charité, where a bust of Griesinger was recently installed.

LONDON LETTER.

The Smallpox Epidemic.

There are 1431 patients in the metropolitan smallpox hospitals, against 1526, 1522 and 1437 in the three preceding weeks; 328 new cases were admitted in the week against 389, 376 and 274 in the preceding weeks.

Smallpox in Scotland.

In Scotland for the quarter ending March 31, 614 cases of smallpox occurred, of which 391 were in Glasgow. The monthly figures are as follows: January, 75; February, 207; March, 322. From April 1 to 15, inclusive, the number was 75, of which Glasgow contributed 31.

Revised Classification of the Causes of Death.

The Registrar-General has issued a new official list of the causes of death, which contains the most important modifications which the advance of science has rendered necessary. Up to the end of the last century—for a period of 60 years—the list of causes of death used was that compiled by the father of English vital statistics, the celebrated Dr. Farr. With the beginning of the new century the list was revised in accordance with the "Nomenclature of Diseases" of the Royal College of Physicians, and a copy is now being issued to all medical practitioners. Such time-honored titles as "zymotic," "miasmatic," "constitutional," "developmental" and "dietetic" have been discarded and the diseases classed under these names have been aggregated under the heading of "General Diseases." In the grouping of these general diseases there are several important improvements. Thus, malignant disease has been subdivided into (1) carcinoma, (2) sarcoma and (3) such cases as cannot with certainty be assigned to either class, for which the term cancer may be used. Italics are used for names which are to be discouraged, but the use of which is at times unavoidable. Thus the College of Physicians is convinced that the terms "gastro-enteritis," "muco-enteritis," "gastric catarrh," etc., which are commonly employed to designate the disease officially known as epidemic diarrhea, are misleading and cause the specific nature of the disease to be ignored. The confusion of terms renders impossible the accurate determination of the prevalence of the disease at special times and places. But as physicians are loth to use the term diarrhea on death certificates, probably because the public regard it as implying a mild disease insufficient to cause death, the term epidemic enteritis or zymotic enteritis is authorized. Dropsy must not be returned as a cause of death without some indication of its probable origin in disease of the heart, liver, kidneys, etc. The term puerperal fever should no longer be used; pyemia, septicemia, or sapremia in a puerperal woman should be substituted. Phthisis is condemned as an ambiguous term which sometimes denotes other wasting diseases than tuberculosis; tuberculous phthisis or pulmonary tuberculosis should be used. Similarly, tabes mesenterica should not be used, as it frequently denotes other diseases than tuberculous peritonitis, which is the authorized term. In returning hydrocephalus those cases due to tuberculosis should be distinguished. Congenital hydrocephalus should always be returned as such. It is hoped that the indefinite term "convulsions" will be restricted to those cases in which the true cause can not be ascertained. At present more than 11 per cent. of the total deaths of infants under one year are referred to convulsions simply. The classification of deaths would be much simplified, it is said, if brain paralysis were always distinguished from paraplegia. The terms "hemiplegia" and "apoplexy" are condemned as only denoting symptoms. They should be replaced by such as signify definite lesions, e. g., "cerebral hemorrhage." Three

different kinds of pneumonia—lobar, broncho-, and epidemic now appear. A wish is expressed that the use of the term "croup" to designate non-diphtheritic affections of the larynx or trachea should be abandoned.

New Regulations for the Naval Medical Service.

The new regulations are similar to those recently introduced for the army and described in *THE JOURNAL*. The entrance examination is made more practical and clinical. A competent knowledge of operative surgery will be essential for candidates and will be tested by operations on the dead body. Rank as staff surgeon will be granted to surgeons 12 years from the date of entry, provided they pass the requisite examination eight years after entry. The subjects of this examination will be medicine, surgery, pathology, general hygiene and naval hygiene. The rates of pay are considerably improved. Thus on entry a surgeon receives per annum \$1270, after four years' service \$1550, after eight years \$1825; a staff surgeon \$2190, after four years' service \$2460; a fleet surgeon \$2735, after four years' service \$3010, after eight years' service \$3285; a deputy inspector-general \$3830, an inspector-general \$6500. Every officer will have the option of retiring after 20 years' service on a pension of \$5 a day. Every medical officer must undergo a post-graduate course of three months at a metropolitan hospital once in eight years.

The Eradication of Malaria.

Major Ronald Ross has submitted a very satisfactory report on the anti-malaria work of the expedition to West Africa, despatched from the Liverpool School of Tropical Medicine. At Freetown, Dr. Logan Turner, employing about 70 men, has drained nearly the whole of the most pestilential parts of the town. The areas dealt with were formerly full of hollows, pits and ill-made drains which in the rainy season contained stagnant pools breeding swarms of mosquitoes. A gang of men was also employed to collect old tins, bottles and other rubbish from the houses, and 2257 cart-loads of such refuse have been removed and 16,295 houses visited. In Dr. Ross' opinion the possibility of ridding Freetown and therefore any town of mosquitoes has been demonstrated. The change in the demeanor of the Europeans is striking. Two and one-half years ago, when Dr. Ross visited the town, he never saw a more gloomy place. The inhabitants felt as if a sword were hanging over their heads. All this is changed and they are as cheerful as the Europeans in India. Arrangements have been made for Dr. Taylor to proceed to Cape Coast in order to start anti-malaria work there, as the mortality is very high.

Cancer Research.

To carry out the scheme of cancer research which has been described in *THE JOURNAL*, an appeal, signed by Sir William Broadbent, Sir Douglas Powell, Sir Thomas Smith, Mr. A. Balfour, First Lord of the Treasury, and other prominent social personages, has been published. Five hundred thousand dollars are required. Of this sum \$100,000 has been paid or promised. As soon as \$150,000 are collected the scheme can be put into force. As it is thought that the investigation must extend over a considerable number of years, in order to secure continuity of research, a capital of \$500,000 is required.

Correspondence.

Puerperal Infection in Private Practice.

CHICAGO, April 22, 1902.

To the Editor:—Your editorial in *THE JOURNAL* of April 19 on "Puerperal Infection in Private Practice" calls attention to a very important subject and one that will bear much discussion to bring and keep it properly before the profession. A careful inspection of the mortality reports of the various city boards of health will confirm the content of your statement, which I believe is also in agreement with the impression of physicians who are particularly interested in obstetric work: that puerperal infection in private practice is still much larger than it should be and not on the decline. In your statement of the causes of this unfortunate state of obstetric practice, however, it may be that you have not dwelt with sufficient fulness nor with sufficient emphasis on the chief factors. At any rate further consideration of these factors is desirable if we expect to bring about any improvement.

I can not hope, in a brief letter, to enter into a comprehensive discussion of this subject, but I wish to call attention to two or three points that have an important influence in re-

tarding the development of universal clean obstetrics. The first is the general lack of preparation for managing a case of labor. A clean bed, well protected with rubber sheets or clean oilcloth, plenty of clean sheets and towels to prevent the soiling of the bed, clean basins and pitchers, with clean soap and nail brush and file and sublimate tablets for use in cleaning the physician and the patient, plenty of sterilized gauze and cotton for dressings in the puerperium, are needed for the proper management of a labor case. How often does the physician neglect to order or provide for these necessary preparations and rue their lack when he comes to the case and finds no impervious covering for the bed or no clean soap or bowl that he can use in washing his hands. Especially in pathologic or operative cases are these preparations necessary. In postpartum hemorrhage, an unlimited supply of hot water for douches, with a rubber sheet to act as a drain, are necessary, and their lack may cost the life of the patient or be an important element in a subsequent infection. In operative cases a table (kitchen) and a good light are necessary, beside the necessary instruments for repair, etc. It is well known that most of the cases of bad infection are the operative cases. This is largely due to the fact that operations are undertaken without proper preparation. Operations are made on the bed without a good light, without anesthesia, under conditions that make any good work absolutely impossible because of the failure of the physician to properly prepare what a surgeon would absolutely demand as essential for a much less important case. The results are dangerous risks and unnecessary infection.

A second cause of poor obstetric work is the hurry in which the work is done, the desire of the obstetrician to get through the case as soon as possible. Many physicians dislike to remain quietly with a case and watch it proceed undisturbed, interfering only when dangerous symptoms demand interference. They feel that their time is wasted unless they are doing something to help on the labor. This attitude of mind leads to imperfect sterilization of the hands and preparation of the patient, frequent examinations, efforts at manual dilatation of the cervix, premature rupture of the membranes, premature application of forceps without dilatation of the cervix or proper indication for artificial delivery, hasty extraction or expression of the placenta and superficial inspection of vulvar and vaginal wounds to avoid the repair of probable lacerations. This haste in the management of labor, this impatience for nature's processes, whether it proceeds from the pressure of other engagements or from the inadequate remuneration, works to the great danger of the patient and is no doubt one of the most important causes of puerperal infection.

Closely allied to the subject of hasty obstetric work is that of the insufficient compensation which is almost universally given physicians for the management of cases of labor. This has an important bearing on the quality of work done and thus on the question of infection. There is no doubt that obstetric fees are in general ridiculously low and made on a very harmful basis. The common practice of taking charge of a case during pregnancy, labor and child-bed for a certain fee is unjust both to the patient and the physician. Why should one agree to take charge of a case for a certain fee not knowing whether the labor will last two hours or two days? The result of this practice is to induce the physician to hasten the labor with the results just alluded to. How can a physician be expected to watch a case carefully and patiently when he knows that his fee for twenty hours of work which have kept him from his sleep and his office and other practice will be \$10, this also including his compensation for previous and subsequent visits? It is no doubt true that much of the obstetric work pays less than 50 cents an hour, less than the wages of a carpenter or plumber. A more reasonable compensation for obstetric work and a more just basis of compensation for such work is a very important condition of an improvement in its character.

Any particular proposition to improve obstetric practice must take into consideration these factors of poor work. It will be seen that an important sociologic problem is involved—one that is of great interest to the profession at the present

time—for its solution depends upon the success of medical organization.

Yours truly,

C. S. BACON.

SO. NORRIDGEWOCK, MAINE, April 29, 1902.

To the Editor:—In your issue of April 19, you voice the sentiment, editorially, that the "mortality, in private practice, from puerperal sepsis is greater to-day than in the pre-aseptic period."

It seems to me that this statement is altogether too sweeping in its nature, and that a careful investigation will not bear out the allegation.

For one, I can say that in five years in this field of 1800 people, with three practitioners, neither better nor worse than the average country doctor, there have been no deaths from puerperal sepsis, nor from any diseases that might have resulted from even a slight sepsis. I am very much inclined to think that Dr. Wiggin's statement and your editorial comment are overdrawn.

E. GARD EDWARDS.

Unfair Deductions from Statistics.

DAVENPORT, IOWA, April 28, 1902.

To the Editor:—In the volume of papers and reports just issued by the American Public Health Association, the deaths from typhoid fever during the years 1898, 1899 and 1900 in 135 municipalities are given under the misleading title, "Typhoid Fever Death-Rates in American Cities." In the interest of accurate statistics and the fair fame of many of the cities misrepresented by this title, I wish to enter a vigorous protest against the article in question.

The rates given are based on but three years' data, and those are the least representative of local conditions that could possibly have been selected. In them was observed, all over the Union, a marked increase of enteric fever due to no change in local conditions, but scattered broadcast by returning soldiers from the Spanish war. It is unjust to select this particular brief period to show the typhoid death-rate of American cities; and it is unfair to use these rates, as has been done, in a comparison of methods of water filtration.

If, instead of three we take ten years, ending with 1900, the typhoid death-rate for this city has been but slightly over 21 instead of 32 per hundred thousand, as given. With an average population since 1900 of at least 32,000 our typhoid deaths in the ten calendar years have been but 68, making our rate as above 21.25. Even this figure is too large for our average rate inasmuch as it includes the abnormal importation period of the war.

Respectfully, C. H. PRESTON, M.D.

Miscellany.

Causation of Beri-Beri.—In the reports of sick for January and February, 1902, recently received at the Surgeon-General's office, Washington, D. C., from the prison and beri-beri hospital at Lingayen, Pangasinan, P. I., Captain Harry A. Littlefield, asst. surgeon, U. S. Vols., has the following interesting note on the causation of beri-beri: Since the establishment of this prison until February 1 of this year, the native prisoners have been supplied with Chinese white rice. During this time beri-beri has been markedly endemic in the prison. The records of this office show that the number of deaths have averaged five monthly, while the number of new cases monthly averaged twenty. When prisoners reported sick with beri-beri they were removed from the prison to a building about one-half mile from the prison, the upper story of the building used for a hospital. The difference between conditions existing at the beri-beri hospital and the prison being only the higher elevation of the former; the diet supply was the same at both places. Many of the cases at the beri-beri hospital continued to grow worse and died. The majority of those who did recover, did so after a very long illness and many of them suffered from numerous relapses. During the month of January there were thirty-five cases in the beri-beri hospital and as many who were slightly affected in the prison. The sanitary conditions were excellent. In the civil prison, not

more than one quarter of a mile distant, there were confined a large number of natives, the sanitary condition not as satisfactory as those of the military prison, they were more crowded, in poorer buildings and not in the open air any more than the natives confined in the military prison. In this civil prison there were no beri-beri cases, the only difference existing in favor of the civil prison being that the ration was purchased in the open market. At the beginning of February of this year, upon the recommendation of the prison surgeon, the use of the Chinese white rice supplied by the commissary was discontinued and native rice from the open market purchased in its place. Since that time no new cases of beri-beri have developed and no death has occurred. Of the 29 cases remaining in hospital on the last of January, 16 have been returned to duty; 8 released, greatly improved; 5 remaining, greatly improved and still improving. The mild cases in the prison have all recovered. This marked change occurred in the space of one month, the only apparent difference existing during this period and in the previous times being that of the rice supply. From these facts it would seem that the cause of beri-beri in this prison has been brought about by the use of the Chinese rice, white variety.

The Recent Operation on the Xiphopagous Twins.—The Orissa twins have long attracted the interest of scientists. Baudouin published an illustrated description of them in the *Semaine Medicale*, in 1892, p. 474. He stated that 9 cases of this kind are known, all girls except the Siamese twins. Three of the pairs died soon after birth; 3 were successfully operated on with the survival of one or both twins, and since 1892 Chapot-Prevost and Doyen have each performed the operation of separating xiphopagous twins with the survival in health of one twin. The mother of the Orissa twins had previously borne five children, the oldest now 28, and since the birth of the twins, in 1889, has passed through another pregnancy. Her other children are normal. It is a curious fact that 3 out of the 9 known cases came from Southern Asia. Doyen presented the details of his operation at the Paris Académie de Médecine, April 8. He mentioned that the twins had not been united by any supplementary tissue. The union was as if an incision had been made in two normal children from the ensiform cartilage to the umbilicus, and the corresponding raw surfaces of liver, diaphragm, ensiform cartilage and skin had been approximated and sutured together. The pedicle was merely the result of traction. At the back it was no more than a groove, but in front it was 5 or 6 cm. wide by 10 or 12 in height. When the twins faced about the pedicle acted like a hinge, the back becoming a groove and the front stretching to the above size. The umbilicus was in the center of the lower edge of the pedicle. The presence of three large arteries in the hepatic pedicle in Doodicia and the fact that Radica seemed always to thrive at the expense of her sister, and that the latter exhibited much greater resistance immediately after the separation, seemed to corroborate the assumption that Radica received arterial blood in abundance from Doodicia while she returned to her only venous blood. The operation was performed to save Radica's life, as Doodicia was in an advanced stage of tuberculous peritonitis. The former had exhibited tuberculous ganglia before the latter's peritonitis developed. The methylene blue test, made on Doodicia before the operation, showed that the interchanges were very rapidly accomplished. Doodicia's temperature was 102.4, while Radica's was only 99, which fact is another refutation of the "humoral theory" in regard to fever. Doyen believed that the least loss of blood would have been fatal and safely avoided it by the application of his "eeraseur" which crushed and clamped the stump of the liver on both sides. The stump was sutured with the wall, leaving two wicks of gauze in each wound to warn off hemorrhage. The results were perfectly satisfactory. The autopsy of Doodicia, who succumbed to her peritonitis, showed that all the organs were in normal position. Radica has gained more than 12 pounds since the operation, February 9. The tuberculous ganglia in neck and axilla have been extirpated and she seems to be thriving, although affected with pronounced lateral curvature in the dorso-lumbar region of the spine. This curvature is evidently due to the constrained position which she had

been forced to assume, and is an argument in favor of early intervention in such cases, before the complete development of the skeleton. The accounts of the operation in the lay press all slyly add that champagne was given in abundance after the intervention was finished, referring to the original source of Doyen's wealth, his father's champagne vintage. For those interested in xiphopagi we refer them to the Institut de Bibliographie, Paris, Boul. St. Germain 93, which makes a specialty of loaning its collection of photographs, cuts, etc., with or without the accompanying abstracts, to any part of the world. It announces that it has pictures of 50 typical specimens of such monstrosities. Chapot-Prevost's operation was described and illustrated in THE JOURNAL, XXXV, p. 1248, 1307 and 1379. The surviving twin was in good health when she called recently at the office of the *Brazil-Medico*, at Rio.

Association News.

Railroad Rates for Saratoga Meeting.

At this writing, May 3, all of the railroad associations except the Southwestern Passenger Bureau have agreed to the following rate for the Saratoga Meeting of the American Medical Association, viz.: one fare and a third on the certificate plan, with return limit July 2 on payment of a fifty-cent execution fee and deposit of certificates with Saratoga railroad agent, not later than June 17. To those beginning the return trip not later than June 17, no fifty-cent extra fee will be charged. This rate has been extended to the American Academy of Medicine, which meets at Saratoga, June 7 to 9, therefore tickets will be on sale in the Trunk Line territories and proportionately early in other territories from June 4 to June 13. Those attending the meeting must secure a certificate from the local railroad agent when they purchase their ticket to the meeting, and the certificate thus obtained, in order to be honored for return trip reduction, must be presented to Dr. William E. Swan, at Saratoga, on either June 11, 12 or 13 for signature and endorsement. Members failing to observe this precaution will not be granted any reduction in the cost of the return ticket. From recent correspondence with the Southwestern Passenger Bureau the committee feels confident that that association will agree shortly to the rate of the other associations herein quoted. The Transportation Committee has been in active correspondence with the several passenger associations on the subject of rates for the Saratoga Meeting since January last, but has been unable before this date to receive positive assurances in the matter of rates.

H. L. E. JOHNSON, M.D.,
Chairman Committee on Transportation.

New Members.

The following is a list of new members for the month of April, 1902:

ARIZONA. Fenner, H. W., Tucson. Plath, O. E., Phenix.	DISTRICT OF COLUMBIA. Jung, F. A. R., Washington.
ARKANSAS. Deaderick, W. H., Marianna.	FLORIDA. Anderson, L. M., Jasper. Hargis, J. W., Pensacola.
CALIFORNIA. Manson, J. I., San Francisco. Glaser, E. F., San Francisco. Frankenheimer, J. B., San Francisco. Montgomery, Jno., San Francisco. Russell, T. G., San Francisco. Rinne, F. A., San Francisco. Moore, W. G., San Francisco. Deardorff, A. G., San Francisco. Tyler, H., Redlands. Well, Conrad, San Francisco. Kiefer, H. A., Los Angeles.	ILLINOIS. Church, A., Chicago. King, O. A., Chicago. Kreissl, F., Chicago. Prendergast, Jos., Chicago. Williams, H. B., Chicago. Boettcher, H. R., Chicago. McKinlock, J., Chicago. Conley, P. H., Chicago. Sleber, F. A., Chicago. Konzelman, A., Chicago. Courtright, C. W., Chicago. Welfeld, J., Chicago. Kerr, E. K., Oak Park. Rogers, R. F., Shelbyville. Montgomery, J. T., Charleston. Maxwell, J. B., Mt. Carmel. Zelgler, W. T., Canton. Barnes, W. S., Chicago. Friedman, W. H., E. St. Louis. Blim, Chas., Crete. Kingsbury, G. C., Mt. Carmel. Babcock, H. S., Danville. Bebb, W. S., La Grange.
COLORADO. Hamilton, G. L. A., Denver. Godsman, P. G., Burlington.	
CONNECTICUT. Crowell, G. B., Bridgeport.	
DELAWARE. Worthington, E., Wilmington.	

INDIANA.

Shilling, John, Ft. Wayne.
Bowers, L. G., Richmond.

IOWA.

Laughlin, J., Ledyard.
Rich, G. C., Sioux City.
Burke, E. W., Iowa Falls.
Weaver, A., Cumberland.

KANSAS.

May, J. W., Kansas City.

KENTUCKY.

Rankin, J. N., Winchester.
Bledsoe, R. W., Covington.
Howell, I. B., Paducah.

LOUISIANA.

Gaudet, A. B., New Orleans.

MARYLAND.

Reeder, J. D., Baltimore.
Garrett, R. E., Catonsville.

MASSACHUSETTS.

Martin, H. C., Springfield.
Noyes, W. F., Pittsfield.
Brown, O. M., Everett.
Thorndike, Paul, Boston.
Cushing, E. W., Boston.
Darling, E. A., Cambridge.
Holbrook, G., Lowell.
Lothrop, H. A., Boston.
Brown, R. E., Everett.

MICHIGAN.

Lockart, E. P., Norway.
Shilling, F. F., Nashville.
Robertson, F. D., Grand Rapids.
Good, C. A., Ann Arbor.
Varney, H. R., Detroit.
Hirschman, L. J., Detroit.

MISSISSIPPI.

Hunter, J. F., Jackson.

MISSOURI.

Hardin, C. B., Kansas City.
Taylor, E. P., Fairfax.
Miller, A., Kansas City.
Booth, D. S., St. Louis.
Van Ravenswaag, C. H., Boonville.
Hanks, Jas. X., Brashear.

MONTANA.

Sullivan, T. J., Butte.
Donovan, J. A., Butte.

NEBRASKA.

Wilson, J. S., Johnson.
Gardner, A. J., Alliance.

NEW HAMPSHIRE.

Von Tobel, F., Lebanon.
Fiske, G. H., Northwood Ridge.

NEW JERSEY.

Keller, F. J., Paterson.
Costill, H. B., Trenton.
Richman, E. M., Newark.
Emerson, L., Orange.
DeMeritt, C. L., West Hoboken.
Broderick, J. J., Jersey City.

NEW YORK.

Sullivan, W. E., Brooklyn.
Smith, H. M., Brooklyn.
Shepard, A. W., Brooklyn.
Lucas, D. F., Brooklyn.
Hancock, J. C., Brooklyn.
Chapman, W. L., Brooklyn.
Fraser, H. E., Brooklyn.
Jewett, F. A., Brooklyn.
Jaerg, Oswald, Brooklyn.
Reb, J. H., Brooklyn.
Rathbun, N. P., Brooklyn.
Alleman, L. A. W., Brooklyn.
O'Gorman, F. M., Buffalo.
Lothrop, E. P., Buffalo.
Taylor, W. G., Buffalo.
Colton, A. J., Buffalo.
Dittrich, E. W., New York City.
Baldwin, F. A., New York City.
Broquet, E., New York City.
Alexander, S., New York City.
McMurdy, W. S., New York City.
Zweighthaft, B., New York City.
Landsman, S. M., New York City.
Delavan, D. B., New York City.
Grohl, H. M., New York City.
James, C. S., New York City.
Hogan, E. J., New York City.
Downes, W. A., New York City.
Luckett, W. H., New York City.
Maier, Otto, New York City.
Pascall, H. S., New York City.
Aspell, J., New York City.
Hadden, J. W., New York City.
Nicol, H. D., New York City.
Moeller, H., New York City.
Fletcher, C. L., New York City.

Darlington, T., New York City.
Strauss, S., New York City.
Thompson, Von B., New York City.
Techner, J., New York City.
Purdy, H. R., New York City.
Dougherty, D. S., New York City.
Van Etten, N. B., New York City.
White, W. A., New York City.
Loughran, F. W., New York City.
Resseguie, F. J., Saratoga Springs.
Thompson, A. W., Saratoga Springs.
Wickware, M. M., Saratoga Springs.
Strong, S. E., Saratoga Springs.
Sweet, J. J., Unadilla.
Blanchard, R. N., Jamestown.
Neary, P. M., Cortland.
Shaw, C. E., Hoosick Falls.
Cavana, M., Onelda.
Kathan, D. R., Corinth.
Hulse, W. A., Bay Shore.
Huehne, F., Rondout.
Hulett, H. L., Allentown.
Hutchison, J. C., Troy.
Curtis, D. F., Rochester.
Curtis, P. C., Round Lake.
Gay, C. B., Syracuse.
Carpenter, W. J., Katanah.
MacPherson, W. A., LeRoy.
Kimbball, G. N., Poughkeepsie.
Stoney, F. E. X., Brooklyn.
Becker, A. A., Jamestown.
Fish, G. H., Saratoga Springs.
Young, A. M., Salem.
Meyer, G. L., Stone Arabia.
Grove, B. H., Buffalo.
Smith, F. A., Corinth.
Van Wirt, J. D., Johnsonville.
Hogeboom, W. L., Troy.

NORTH CAROLINA.

Morse, L. B., Asheville.
Sawyer, C. J., Elizabeth City.

OHIO.

Perkins, R. G., Cleveland.
Friend, J. M., Cleveland.
Ballard, H. C., Cleveland.
Upson, G. D., Cleveland.
Osborn, W. O., Cleveland.
Clapp, H. T., Cleveland.
Luck, H. C., Cleveland.
Perrier, J., Cleveland.
Rosewater, N., Cleveland.
Alderdyce, W. W., Cleveland.
Rosenberg, E., Cleveland.
Clarke, Ida, Youngstown.
Andrews, J. H., Goshen.
Jones, D. J., Lisbon.
Dale, G. P., Dayton.
Davis, Carrie C., Sandusky.
Smith, H. H., Sharonville.

OKLAHOMA.

Bartle, P. J., Carmen.
Blesh, A. L., Guthrie.

OREGON.

Pettit, J. A., Portland.
Panton, A. C., Portland.
Brooke, J. M., Portland.
McKay, H. F., Portland.

PENNSYLVANIA.

Steele, J. D., Philadelphia.
Francine, A. P., Philadelphia.
Coles, S., Philadelphia.
Breneman, P. P., Lancaster.
Hakes, S. P., Tioga.
Mountain, W. S., Confluence.
Wainwright, J. M., Scranton.
Kunkle, W. F., Williamsport.

RHODE ISLAND.

Chapman, W. L., Providence.
Sprague, F. B., Providence.
Sweet, C. L., Pawtucket.
Welch, S. A., Providence.

SOUTH CAROLINA.

Lyon, Jno., Ninety-six.

SOUTH DAKOTA.

Parsons, J. G., Brookings.
Rhoden, J. C., Elk Point.

TENNESSEE.

Winston, A. L., Memphis.
Applegate, W. R., Chattanooga.
Bachman, J. S., Bristol.
Bogart, W. M., Hill City.

TEXAS.

Dean, J. J., Waco.

WASHINGTON.

Powell, J. L., Tacoma.
Brandenburg, H. A., Huntington.

WISCONSIN.

Becker, W., Milwaukee.
Fitzgerald, J. J., Eagle.

Preliminary Programs of the Sections of the American Medical Association, Saratoga Meeting, June 10-13, 1902.

The following is a list of papers to be read in the various sections. The programs as arranged below must be considered as preliminary, and the order given not necessarily to be followed in the official program.

The official program will not be ready for distribution till the meeting.

Write to the Secretary of the Section in regard to any changes, corrections, etc., and not to THE JOURNAL.

Section on Practice of Medicine.

Chairman, Frank A. Jones, Memphis, Tenn.; Secretary, Robert B. Preble, Chicago.

Opening Address by the Chairman, Frank A. Jones, Memphis, Tenn.

The Autogenous Diseases, Victor C. Vaughan, Ann Arbor, Mich.

Some Clinical Points in the Diagnosis and Differentiation of Ascites, Arthur R. Edwards, Chicago.

Appendicitis from a Physician's Standpoint, James Tyson, Philadelphia.

Amebic Dysentery in Michigan, George Dock, Ann Arbor, Mich.

A Case of Scurvy with Unusual Poverty of the Blood, James E. Talley, Philadelphia.

The Origin of the Vesicular Respiratory Sound, C. F. Hoover, Cleveland, Ohio.

Etiology of Chronic Nephritis, A. R. Elliott, Chicago.

Malarial Nephritis, with Report of a Case, W. Britt Burns, Memphis, Tenn.

Classification of Chronic Nephritis, James B. Herrick, Chicago.

The Diagnosis of Chronic Nephritis, A. O. J. Kelly, Philadelphia.

The Early Circulatory Indications of Chronic Bright's Disease, L. F. Bishop, New York City.

Uremic Aphasia, David Riesman, Philadelphia.

The Prognosis and Treatment of Chronic Nephritis, DeLancey Rochester, Buffalo, N. Y.

Clinical Observations on Transposition of the Viscera, Congenital and Acquired, J. R. Arneill, Ann Arbor, Mich.

Notes of a Case of Cardiac Thrombosis, J. H. Musser, Philadelphia.

Some Instructive Errors in Cardiac Diagnosis and Treatment, Richard C. Cabot, Boston.

Venesection, H. B. Favill, Chicago.

The Employment of Digitalis and Aconite in the Treatment of Cardiac Diseases, H. A. Hare, Philadelphia.

Tuberculous Myocarditis, J. M. Anders, Philadelphia.

Some Cardiac Phenomena as Revealed by the Roentgen Rays, Albert Abrams, San Francisco.

The Occurrence of Gout in the United States with an Analysis of Thirty-six Cases, T. B. Futcher, Baltimore.

A Summary of Recent Investigations by the Author into the Causes and the Treatment of Diabetes, A. C. Croftan, Philadelphia.

On the Association of Graves' Disease and Glycosuria, Heinrich Stern, New York City.

Syphilis of the Liver, Chas. G. Stockton, Buffalo, N. Y.

Syphilis of the Stomach, Max Einhorn, New York City.

Syphilis of the Serous Membranes, Alfred Stengel, Philadelphia.

Endocarditis as a Complication of Pneumonia, E. F. Wells, Chicago.

The Treatment of Croupous Pneumonia, E. Fletcher Ingals, Chicago.

An Analysis of 65 Cases of Gastroptosis, J. Dutton Steele, Philadelphia.

The Etiology of Rheumatism and the Significance of Purpura, George W. Webster, Chicago.

Etiology and Prophylaxis of the Cardiac Manifestations of Articular Rheumatism, Joseph M. Patton, Chicago.

Primary Rheumatic Endocarditis, Judson Daland, Philadelphia.

The Salicylates in Acute Rheumatism, J. J. Walsh, New York City.

The Present Status of Serumtherapy, Frederick A. Packard and Robert N. Willson, Philadelphia.

Obstetrics and the General Practitioner, M. H. Fussell, Philadelphia.

The Open-Air Treatment of Tuberculosis; Tent Life in Arizona, R. W. Craig, Phenix, Ariz.

Lung Compression in the Treatment of Tuberculosis, A. F. Lemke, Chicago.

The Causal Relation of Blood Poverty to Gastric Ulcer, with Report of an Illustrative Case with Atypical Findings, Robert N. Willson, Philadelphia.

The Influence of Electric Ozonation Upon the Blood, G. Lenox Curtis, New York City.

Section on Obstetrics and Diseases of Women.

Chairman, J. H. Carstens, Detroit; Secretary, C. L. Bonfield, Cincinnati.

Chairman's Address, J. H. Carstens, Detroit, Mich.

Treatment of Retroversion and Retroflexion of the Uterus, J. W. Cokenower, Des Moines, Ia.

Vaginal Celiotomy and Vagino-fixation of the Uterus, A. Goldspohn, Chicago.

Surgical Treatment of the Utero-sacral Ligaments Through the Vagina in Retroversion of the Uterus, J. Wesley Bovée, Washington, D. C.

Electrothermic Hemostasis, A. J. Downes, Philadelphia.

Drainage in Abdominal and Pelvic Surgery, A. Palmer Dudley, New York City.

Technic of Abdominal Hysterectomy for Cancer, W. R. Pryor, New York City.

High Amputation of the Cervix versus Hysterectomy for Operable Carcinoma of the Cervix, C. C. Frederick, Buffalo, N. Y.

Operation for Recurrence of Cancer After Hysterectomy, E. W. Cushing, Boston.

Some Cases of Ureteral Stricture, H. A. Kelly, Baltimore.

Plastic Surgery of the Female Urethra, with Report of a Unique Case, H. P. Newman, Chicago.

Repair of the Perineum, C. A. L. Reed, Cincinnati.

Deflected Presentation in Labor, Gustav Kolischer, Chicago.

What Cases of Placenta Previa Can Be Best Treated by Cesarean Section? Francis D. Donoghue, Boston.

Massage and Exercise in the Management of the Puerpera, C. S. Bacon, Chicago.

The Results of Abdominal Section for the Various Forms of Septic Inflammation Following Labor and Abortion, B. C. Hirst, Philadelphia.

Etiology and Pathology of Ectopic Pregnancy, Henry D. Ingram, Buffalo, N. Y.

Cesarean Section Made Necessary by a Ventrofixation, William M. Findley, Altoona, Pa.

Is Laparotomy or Vaginal Section Justifiable or Indicated for the Relief of the Single Symptom of Sterility? J. R. Goffe, New York City.

The Influence of Prolapse of the Kidney on the Production of Pelvic Disease in the Female, A. H. Goelet, New York City.

Movable Kidney and Its Remote Results, A. H. Cordier, Kansas City.

Pathologic Conditions of the Omentum as a Surgical Factor; the Best Method of Treatment, Henry O. Marcy, Boston.

Treatment of Umbilical and Ventral Hernia, Wm. Wathen, Louisville, Ky.

Critical Remarks on the Methods of Operations in Vogue for Cystocele with or without Prolapse of the Uterus, C. O. Theinhaus, Milwaukee, Wis.

Some of the Complications of Gonorrhoea in the Female, J. Taber Johnson, Washington.

The Evolution of the Treatment of Pelvic Inflammation, E. E. Montgomery, Philadelphia.

The Mortality Following Operation for Pus in the Pelvis, Hunter Robb, Cleveland, Ohio.

Drainage Versus Radical Operation for Suppuration in the Female Pelvis, C. P. Noble, Philadelphia.

The Advantage of the Vaginal Route in Obese Patients, W. H. Humiston, Cleveland, Ohio.

Uterine Myomata, Thomas S. Cullen, Baltimore.

Post-Operative Intestinal Paresis, F. H. Wiggin, New York City.

Post-Operative Phlebitis, J. G. Clark, Philadelphia.

Conservative Operation Upon the Ovary, L. H. Dunning, Indianapolis.

Hematoma of the Ovary, A. L. Beahan, Canandaigua, N. Y.

Ten Years in a Gynecologic Clinic, David J. Doherty, Chicago.

Surgical Treatment of Internal Hemorrhoids from the Standpoint of the Gynecologist, Wm. F. Metcalf, Detroit, Mich.

Section on Surgery and Anatomy.

Chairman, DeForest Willard, Philadelphia; Secretary, James B. Bullitt, Louisville.

Chairman's Address.

The Surgical Treatment of Pulmonary Abscess Following Lobar-Pneumonia, Floyd W. McRae, Atlanta, Ga.

A Contribution to the Surgery of the Lung as Based Upon Original Observations, Horace J. Whitacre, Cincinnati.

Climate as a Factor in the Management of Genito-Urinary Tuberculosis, Chas. A. Powers, Denver.

Tubercular Peritonitis; Its Relation to Tuberculosis of the Female Genitalia. John B. Murphy, Chicago.

Two Cases of Tubercular Peritonitis in Young Women; Free Incision, Drainage, Enclosure of Oxygen in the Abdominal Cavity by Hermetical Sealing of the Wound, Maurice H. Richardson, Boston.

Report of a Case of Encysted Dropsy of the Peritoneum, Tubercular in Character, with Hernia of a Portion of the Cyst; Operation: Recovery. Light as a Curative Agent in Tubercular Peritonitis, Miles F. Porter, Fort Wayne, Ind.

Low Lateral Pharyngotomy for Approach to the Lower Portion of the Pharynx, Upper Portion of the Esophagus and Posterior Surface of the Larynx, with an Illustrative Case, Joseph D. Bryant, New York City.

Further Experiences with a Modified Method for the Cure of Relapsing Talipes Equino-Varus, A. F. Jonas, Omaha, Neb.

The Treatment of Acetabular Disease of the Hip-Joint, E. H. Bradford, Boston.

The Prevention of Deformity, Wisner R. Townsend, New York City.

The Value of Manual Training in Mechanics to the Surgical Student, S. D. Van Meter, Denver.

Gunshot Wounds of Cavities: Civil Side, Wm. L. Rodman, Philadelphia.

Gunshot Injuries of the Chest and Abdomen, from the Military Standpoint, L. LaGarde, Washington, D. C.

Gunshot Wounds of the Large Joints, J. D. Griffith, Kansas City, Mo.

Treatment of Gunshot Wounds of Large Joints: Military Practice, George Ryerson Fowler, Brooklyn.

A Contribution to Surgery of the Pancreas, C. H. Frazier, Philadelphia.

The Surgical Aspects of Acute Pancreatitis and Fat Necrosis, William J. Mayo, Rochester, Minn.

Surgery of the Gall-Bladder and Bile Ducts, Alexander Hugh Ferguson, Chicago.

Why Not Treat the Gall-Bladder as We Do the Appendix Vermiformis? Roswell Park, Buffalo, N. Y.

Gallstones in the Common Duct, Martin B. Tinker, Baltimore.

Appendicitis; a Critical Review of 416 Cases Operated on at the German Hospital During 1901, John B. Deaver and Geo. G. Ross, Philadelphia.

Appendicitis; a Brief Report of the Author's Nine Fatal Cases, with Comments, Parker Syms, New York City.

Some Anomalies in Appendicitis, Ernest Laplace, Philadelphia.

Obstructions of the Bowels by Meckel's Diverticulum, James E. Moore, Minneapolis.

Prostatic Obstructions to Urination; Indications for Operative Procedures for Its Removal, J. W. S. Gouley, New York City.

Infra-Pubic Section for Prostatotomy and Prostatectomy, E. Wyllys Andrews, Chicago.

Drainage of Extra-Vesical and Extra-Peritoneal Suppurations of the Male Pelvis, Eugene Fuller, New York City.

External Urethrotomy from the Standpoint of the General Surgeon, John C. Munro, Boston.

The Symptomatology of Renal and Ureteral Disease, C. L. Leonard, Philadelphia.

Essentials in the Construction of Hospitals for Great Cities, A. J. Ochsner, Chicago.

Shock, Edward Martin, Philadelphia.

Anatomy for the Practitioner, C. M. Jackson, Columbia, Mo.

Treatment of Fractures of the Neck of Femur, C. E. Thomson, Scranton, Pa.

Anatomic Treatment of Fractures of the Femoral Neck, C. E. Ruth, Keokuk, Ia.

Ununited Fractures, S. H. Weeks, Portland, Me.

Simple Periosteal-capsular Approximation with Buried Sutures vs. Wiring or Osseous Suture in Treatment of Fractured Patella, with Report of Cases, Rudolph Matas, New Orleans.

Treatment of Fracture of the Patella by Subcutaneous Purse-String Suture, John B. Roberts, Philadelphia.

Acquired Non-Malignant Stricture of Rectum; Causes, Symptoms, and Treatment, W. Duff Bullard, New York City.

Removal of the Entire Scapula, Edwin Field, Red Bank, N. J.

Surgery of the Heart (Experimental), with Stereopticon Illustrations, B. M. Ricketts, Cincinnati.

Fractures of the Lower End of the Radius, Illustrated by Lantern Slides, Carl Beck, New York City.

Traumatic Rupture of the Abdominal Viscera, Daniel N. Eisendrath, Chicago.

The Remote Results of the Non-Surgical Treatment of Peritonitis, H. D. Niles, Salt Lake City.

Some Clinical Observations in Intestinal Surgery, A. Morgan Vance, Louisville, Ky.

A Study of the Relative Merits of the Various Methods of Intestinal Anastomosis, R. C. Coffey, Portland, Ore.

The Improvement of General Anesthesia on Basis of Schleich's Principles, with Special Reference to Anesthol, Willy Meyer, New York City.

One Thousand Personally Conducted Cases of Ethyl Chlorid Narcosis, Martin W. Ware, New York City.

Medullary Narcosis, A. W. Morton, San Francisco.

A Contribution to Ureteral Surgery, with Report of a New Operation for the Cure of a Double Uretero-Vaginal Fistula, X. O. Werder, Pittsburg, Pa.

Section on State Medicine (Hygiene and Sanitary Science).

Chairman, Arthur R. Reynolds, Chicago; Secretary, H. M. Bracken, Minneapolis, Minn.

TUBERCULOSIS.

Relation of Bovine to Human Tuberculosis, papers by D. E. Salmon, U. S. Bureau of Animal Industry, Washington, D. C., and R. R. Dinwiddie, U. S. Agricultural Experiment Station, Fayetteville, Ark.

Sanitarium Treatment of Tuberculosis, S. C. Bonney, Denver.

The U. S. Sanitarium and Hospital for the Treatment of Pulmonary Tuberculosis, D. M. Appel, Ft. Bayard, N. M.

State and Municipal Sanitaria—the Present Aspect of the Tuberculosis Problem in the United States, S. A. Knopf, New York City.

Sanitarium Treatment for Tuberculosis, Based on the Experience at Fort Stanton, P. M. Carrington, Ft. Stanton, N. M.

Climatic Treatment of Tuberculosis, David R. Fly, Amarillo, Texas.

Treatment of Pulmonary Tuberculosis from the Sanitarium Standpoint, J. Evans Stubbert, Liberty, N. Y.

The Care of the Skin in Pulmonary Tuberculosis, J. Frank McConnell, Las Cruces, N. M.

Individual and Municipal Prophylaxis of Tuberculosis, Arnold C. Klebs, Chicago.

Sanitary Measures for the Prevention of Tuberculosis in New York City and Their Results, Herman M. Biggs, New York City.

Are Milk and Meat Sources of Seed Supply for Human Tuberculosis? Lawrence F. Flick, Philadelphia.

VACCINATION AND SMALLPOX.

Some Facts About Vaccination, Heman Spalding, Chicago.

Laboratory Inspection of Vaccine, Adolph Gehrman, Chicago.

INFLUENZA.

The Sociologic Relations of Influenza, James G. Kiernan, Chicago.

A Further Contribution to the Bacteriology of Influenza, F. E. Wynekoop, Chicago.

Influenza and the Nervous System, Smith Ely Jelliffe, New York.

PNEUMONIA.

Pneumonia—Its Increasing Prevalence and Fatality, with Suggestions for Individual and Communal Prophylaxis, Edward F. Wells, Chicago.

Epidemicity and Increasing Fatality of Pneumonia, James J. Walsh, New York.

MISCELLANEOUS.

The Use of the Microscope in the Diagnosis of Scarlet Fever, W. K. Jaques, Chicago.

Sanitation and Politics, Walter Wyman, Washington, D. C.

The Drainage Canal of the Valley of Mexico, Henry O. Marey, Boston.

Among those to discuss the foregoing are: William Osler, Johns Hopkins; Benjamin Lee, Pennsylvania; Victor C. Vaughan, Michigan; A. C. Cotton, Illinois; William M. Welch, Pennsylvania; W. A. Evans, Illinois; Mazyek P. Ravenel, Pennsylvania; George Dock, Michigan; Wyatt Johnston, Canada; E. S. St. B. Sladen, Cambridge, Eng., and others.

Section on Ophthalmology.

Chairman, Frank Allport, Chicago; Secretary, C. A. Veasey, Philadelphia.

Address of the Chairman, Frank Allport, Chicago.

Blepharitis Marginalis, Dudley S. Reynolds, Louisville, Ky.

Sub-Conjunctival Inflammations, Henry Gradle, Chicago.

The Treatment of Spermiginous Ulcer of the Cornea, Chas. J. Kipp, Newark, N. J.

The Nature and Treatment of Pterygia, John O. McReynolds, Dallas, Texas.

Triosinamin in Corneal Opacities; Experiences and Clinical Results, Geo. F. Suker, Chicago.

Address: The Removal of Foreign Bodies from the Eye, Prof. O. Haab, Zurich, Switzerland.

Foreign Bodies in the Eye, Wm. M. Sweet, Philadelphia.

A Report of Some Cases of Foreign Bodies in the Eye; Where Haab's Magnet Was Used, Myles Standish, Boston.

An Operation for the Restoration of a Cul-de-Sac for the Wearing of an Artificial Eye, with Report of Cases, John E. Weeks, New York City.

The Relative Indications for Enucleation and the Mules Operation, N. J. Hepburn, New York City.

On the Symmetry of Our Visual Apparatus as a Dual Organ. Plea to Modify the Customary Notation of the Ocular Meridians, Herman Knapp, New York City.

Concerning the Symptomatology and Etiology of Certain Types of Uveitis, Geo. E. de Schweinitz, Philadelphia.

An Analysis of Thirty-seven Cases of Uveitis, with Special Reference to, 1, Etiology; 2, Relapses; 3, Rare Early Symptoms and Ophthalmoscopic Changes; 4, Importance of Perimetric Examinations, Hiram Woods, Baltimore.

The Diagnostic Significance of Keratitis Punctata, Harry Friedenwald, Baltimore.

Injuries of the Eye Productive of Diseases of the Uveal Tract, Howard F. Hansell, Philadelphia.

The Pathology of Uveitis, W. H. Wilder, Chicago.

Pilocarpin Injections in Diseases of the Uveal Tract, T. A. Woodruff, Chicago.

The Treatment of Uveitis, W. B. Marple, New York City.

Exhibit of Early American, British and Colonial Ophthalmologic Literature, by a Committee Consisting of Dr. Casey A. Wood, Chicago, Chairman; Dr. A. R. Baker, Cleveland, Ohio; Dr. A. A. Hubbell, Buffalo; and Dr. Harry Friedenwald, Baltimore. Address by the Chairman of the Committee.

Neuro-Epithelioma Retinae (Glioma), with Report of Cases, Illustrated, C. R. Holmes, Cincinnati.

Detachment of the Retina, R. L. Randolph, Baltimore.

The Most Rational Methods of Asepsis in Ophthalmic Surgery, Joseph A. White, Richmond, Va.

Cataract Extractions, with Remarks, David Webster, New York City.

The Disappearance of Opacities of the Crystalline Lens, Walter Pyle, Philadelphia.

The Anatomy of the Ocular Muscles and Their Accessory Structures, J. Elliott Colburn, Chicago.

The Physiology of the Ocular Muscles, with Demonstrations, E. C. Ellett, Memphis, Tenn.

Principles Controlling Operative Interference in Heterophoria, E. J. Gardiner, Chicago.

Principles Controlling Non-Operative Interference in Heterophoria, Including the Use of Prisms and Prism Exercise, S. C. Ayres, Cincinnati.

Principles Controlling Operative Interference in Strabismus, Edward Jackson, Denver.

Principles Controlling the Non-Operative Treatment of Strabismus, G. M. Gould, Philadelphia.

Jacques Daviel, and the Beginnings of the Modern Operation of Cataract; An Address Commemorative of the 150th Anniversary of the Publication of the First Description of the Operation, A. A. Hubbell, Buffalo.

The Use of a Mydriatic After Forty-five Years of Age, H. M. Starkey, Chicago.

The Decentering of Lenses for Near Work, G. C. Savage, Nashville, Tenn.

The Need for Correcting Anisometropia After Middle Life, C. M. Culver, Albany, N. Y.

Lessons Learned from a Recent Case of Chronic Myopia, Chas. A. Oliver, Philadelphia.

The Clinical Aspects and Non-Operative Treatment of High Myopia, S. D. Risley, Philadelphia.

Associated Movements of the Eyes and Head, Wm. C. Posey, Philadelphia.

Test Objects and Test Letters, Elmer G. Starr, Buffalo, N. Y.

Should the General Practitioner Have a Working Knowledge of the Ophthalmoscope and Trial Lenses? A. R. Baker, Cleveland, Ohio.

Teaching Ophthalmology to Undergraduates, F. C. Todd, Minneapolis, Minn.

Metastatic Sarcoma of the Choroid, Meyer Weiner, St. Louis.

Section on Diseases of Children.

Chairman, H. M. McClanahan, Omaha, Neb.; Secretary, Frank X. Walls, Chicago.

Lessons from Current Pediatric Literature, H. M. McClanahan, Omaha.

Adenoids in Infancy, Herman Jarecky, New York City.

Adenoids, W. Preudenthal, New York City.

Recognition and Prompt Removal of Post-Nasal Adenoids in Children, Louis J. Lautenbach, Philadelphia.

Visual Hygiene, L. K. Baker, Cleveland.

Management of Foreign Bodies in the Air Passages of Children, Wm. Jepson, Sioux City, Iowa.

Retro-pharyngeal Abscess in Infancy, John Lovett Morse, Boston.

Doubtful Fevers of Infancy, J. L. Duenas, Havana, Cuba.

Cerebrospinal Fever, J. P. Crozier Grifth, Philadelphia.

The Efficacy of Recent Vaccination, W. M. Welch, Philadelphia.

A Case of Typhoid Fever in an Infant, E. F. Brush, Mount Vernon, N. Y.

The Clinical Features of Some of the Anemias of Childhood, W. C. Hollopeter, Philadelphia.

Tubercular Peritonitis, Thos. Morgan Rotch, Boston.

The Propagation of Tuberculosis by Means of Children, Paul Paquin, Asheville, N. C.

Alcoholism in Young Children, Samuel McClintock Hamill, Philadelphia.

Report of a Case of Bulbar Paralysis, A. C. Cotton, Chicago.

Care of Child in Utero, C. E. Paddock, Chicago.

Relation of Bacteria in Milk to Children Over Two Years, Wm. H. Park, New York City.

Physiology of Infant Digestion, J. C. Waterman, Council Bluffs, Iowa.

Acute Gastro-enteritis of Infants, Margaret Taylor Shutt, Springfield, Ill.

Milk Idiosyncrasies in Children, Louis Fischer, New York City.

Improvement of Breast Milk and Prolongation of Lactation, Thos. S. Southworth, New York City.

Infant Feeding, Alex. McAlister, Camden, N. J.

Diseases of the Hip in Uric Acid Diathesis, A. Vanderveer, Albany, N. Y.

Synostosis of the Skull with Universal Calcification of the Arteries in a Boy Three Years of Age, David Riesman, Philadelphia.

Hemorrhages in the New-Born, I. A. Abt, Chicago.

Dermoid Tumors in Children, S. W. Kelley, Cleveland, Ohio.

Flat Foot in Children, Diagnosis and Treatment, Robert W. Lovett, Boston.

Cretinism, Rosa Engleman, Chicago.

Chlorosis, C. F. Wahrer, Fort Madison, Iowa.

Limitations of Childhood, Arthur De Voe, Seattle, Wash.

Report of Two Cases of Sudden Death from Lymphatism, A. P. Ohlmacher and F. X. Walls, Chicago.

Inanition Fever, Frank P. Norbury, Jacksonville, Ill.

Surgical Treatment of Deformities, V. B. Gibney, New York.

Section on Stomatology.

Chairman, A. H. Peck, Chicago; Secretary, Eugene S. Talbot, Chicago.

Chairman's Address, A. H. Peck, Chicago.

The Embryology of the Dental Pulp, R. R. Andrews, Cambridge, Mass.

The Histology of the Pulp, Vida A. Latham, Chicago.

Notes on the Preparation of Teeth for the Microscope, Martha Anderson, Moline, Ill.

Evolution of the Pulp, Eugene S. Talbot, Chicago.

A Comparative Study of the Attachment of Teeth, Frederick Noyes, Chicago.

Permanent Benefit Resulting from the Correction of Irregularities of the Teeth Due to Interstitial Gingivitis, M. H. Fletcher, Cincinnati.

Observations on Some Recent Cases of Orthodontia, with Illustrations, E. A. Bogue, New York City.

General Nervous Manifestations in Relation to the Jaws and Teeth, G. V. I. Brown, Milwaukee, Wis.

Electric Ozonation Upon Neuralgia, G. Lenox Curtis, New York City.

Diagnosis, Jonathan Taft, Cincinnati.

The Modern Dentist from a Medical Standpoint, Wm. Knight, Cincinnati.

Chancre of the Lip, G. T. Carpenter, Chicago.

Oral Hygiene, G. F. Eames, Boston.

The Legal Status of the Term "Reputable" as Applied to Dental Colleges, Chas. Chittenden, Madison, Wis.

Auto-Infection of the Mouth, G. L. Parmele, Hartford, Conn.

Dento-Facial Orthopedics, W. E. Walker, New Orleans.

Section on Nervous and Mental Diseases.

Chairman, Richard Dewey, Wauwatosa, Wis.; Secretary, F. Savary Pearce, Philadelphia.

Address of Chairman, Richard Dewey, Wauwatosa, Wis.

Memorial to Dr. J. T. Eskridge, Charles K. Mills and Frank P. Norbury.

After-Results in Some Cases of Alleged Trauma to the Nervous System, Haldor Sneve, St. Paul, Minn.

Educational Exercise in Locomotor Ataxia, J. H. W. Rhein, Philadelphia.

Symmetrical Gangrene (Raynaud) Versus Endarteritis Obliterans, Jas. D. Morgan, Washington, D. C.

Prognosis of Mental Diseases, Frank P. Norbury, Jacksonville, Ill.

Alcoholic Epilepsy, T. D. Crothers, Hartford, Conn.

The Babinski Phenomenon in Insane Epileptics (Results of a Thousand Observations), J. M. Keniston, Middletown, Conn.

Exceptional Forms of Pressure Palsies, J. D. McCarthy, Philadelphia.

Concerning Morphin Addiction and Its Treatment, C. B. Burr, Flint, Mich.

Static Electricity in the Treatment of Morphinism, A. J. Pressey, Cleveland, Ohio.

The Diagnostic Value of Lumbar Puncture in Certain Cases of Brain Injury (Report of Cases), G. W. McCaskey, Fort Wayne, Ind.

Peripheral Neuritis as a Complication of Whooping Cough, A. A. Eshner, Philadelphia.

A Résumé of Pathologic Findings in Fifty-one Cases of Insanity, E. G. Carpenter, Columbus, Ohio.

Huntington's Chorea, Harold N. Moyer, Chicago.

Some Conditions with Which Migraine May be Associated; Their Value as an Indication for Treatment, Joseph Sailer, Philadelphia.

Paretic or Paranoiac—A Study in Diagnosis, C. A. Drew, Bridgewater, Mass.

Cases Illustrating Involuntary Movements in Ataxia, J. H. W. Rhein, Philadelphia.

Dementia Paralytica in Children, Sydney Kuh, Chicago.

Locomotor Ataxia Complicated by Thrombosis of the Pontine Arteries, etc., S. D. Hopkins, Denver, Colo.

Encephalic Localization, Especially with Reference to Osteoplastic Operations for Brain Tumors, Charles K. Mills, Philadelphia.

The General Principles of Symptoms in Nervous Diseases, Herman Gasser, Platteville, Wis.

Intoxication Insanities, W. A. Jones, Minneapolis.

SYMPOSIUM ON EPILEPSY (SECOND DAY—AFTERNOON).

Etiology and Pathogenesis of Epilepsy, F. Savary Pearce, Philadelphia.

Diagnosis, Symptomatology, Anomalous Forms, Relation to Hysteria, Migraine, Etc., C. W. Burr, Philadelphia.

Psychopathology and Medicolegal Relations. H. A. Tomlinson, St. Peter, Minn.

Treatment, Medicinal, Hygienic and Surgical, D. R. Brower, Chicago.

Institutions for the Epileptic, Wm. P. Spratling, Sonyea, N. Y.

Discussions to be opened as follows:

(a) Etiology, Etc.: F. W. Langdon, Cincinnati.

(b) Diagnosis, Etc.: H. N. Moyer, Chicago.

(c) Psychopathology, Etc.: A. B. Richardson, Washington, D. C.

(d) Treatment: F. Savary Pearce, Philadelphia.

(e) Institutions: Frederick Peterson, New York City.

N. B.—Papers are limited to 20 minutes. Discussions are limited to 5 minutes. Abstracts of papers should be sent to the Secretary at once. Those members of the Association intending to attend the dinner of this Section will confer a favor by writing an acceptance that we may know early for how many to provide.

Section on Cutaneous Medicine and Surgery.

Chairman, Henry W. Stelwagon, Philadelphia; Secretary, R. R. Campbell, Chicago.

Chairman's Address, Henry W. Stelwagon, Philadelphia.

Syphilis as a Causative Factor of Pyorrhea Alveolaris, A. H. Ohmann Dumesnil, St. Louis.

Pathology of Chromidrosis, with Lantern Slide Demonstration, M. L. Heidingsfeld, Cincinnati.

Exhibition of Wax Models of Unusual Types of Skin Diseases, J. Frank Wallis, Philadelphia.

Dermatitis Repens, Milton B. Hartzell, Philadelphia.

Report of Four Cases of Syphilis Mistaken for Smallpox, with Differential Diagnosis, J. F. Schamberg, Philadelphia.

Dermatitis Hiemalis, William Thomas Corlett, Cleveland.

Atrophoderma, with Report of Two Cases, A. Ravogli, Cincinnati.

Rest in Skin Diseases, R. Abrahams, New York.

Report of a Case of Recurrent Bullous Eruption and Sarcoma of the Skin; a Study of Five Cases, W. S. Gottheil, New York.

Pityriasis Rosæ, L. Weiss, New York.

Parasitic Fungoid Diseases, Jay F. Schamberg, Philadelphia.

Venereal Prophylaxis that Is Feasible, Ludwig Weiss, New York.

Sarcomatosis Cutis, David Lieberthal, Chicago.

The Relation of Lupus Erythematosus to Tuberculosis, Henry G. Anthony, Chicago.

A Contribution to the Subject of Radiotherapy and Photo-therapy in Carcinoma, Tuberculosis and Other Diseases of the Skin, James Nevins Hyde, Frank Hugh Montgomery and Oliver S. Ormsby, Chicago.

Etiology of Psoriasis, William L. Baum, Chicago.

Treatment of Skin Diseases By Means of the X-Rays, Louis E. Schmidt, Chicago.

Syphilis of the Larynx, C. M. Robertson, Chicago.

Glanders in Man, L. Blake Baldwin, Chicago.

Section on Laryngology and Otology.

Chairman, G. Hudson Makuen, Philadelphia; Secretary, J. F. Barnhill, Indianapolis.

Address of Chairman, G. Hudson Makuen, Philadelphia.

Some Practical Suggestions Concerning the Use of Tuning Forks in the Diagnosis of Ear Diseases, Wm. L. Ballenger, Chicago.

The Early Appearance, Diagnosis and Treatment of Tuberculosis of the Upper Air Tract, Walter F. Chappell, New York City.

Transillumination of the Accessory Sinuses During Acute Coryza, C. M. Cobb, Lynn, Mass.

A Case of Severe Syphilitic Laryngitis Complicated by Pulmonary Involvement, P. S. Donnellan, Philadelphia.

The Diagnosis of Carcinoma of the Larynx, O. T. Freer, Chicago.

An Unusual Case of Sero-Sanguinous Exudation from Both Ears, M. A. Goldstein, St. Louis.

A Case of Sarcoma of the Maxillary Sinus, Partial Excision of the Upper Jaw and Remarks, Joseph S. Gibb, Philadelphia.

Rhinitis Caseosa, A. C. Getchell, Worcester, Mass.

Development of the Organ of Hearing; Illustrations, C. R. Holmes, Cincinnati.

Turbinotomy; Its Indications and Technic, Chevalier Jackson, Pittsburg, Pa.

A Case of Laryngectomy, E. Fletcher Ingals, Chicago.

Oleum Pinus Pumilionis as a Valuable Aid in Lessening the Irritating Effects of Anesthetics, D. Braden Kyle, Philadelphia.

A Case of Brain Abscess, Geo. F. Keiper, LaFayette, Ind.

The Treatment of Chronic Otitis Media Purulentia, D. A. Kuyk, Richmond, Va.

Atresia of the External Auditory Canal, with Report of Cases, John O. McReynolds, Dallas, Texas.

Remarks Concerning the Management and Treatment of Rhino-Pharyngeal Tonsils, by the General Practitioner, Robert C. Myles, New York City.

The Degenerate Tonsil, E. Pynchon, Chicago.

Prophylaxis of Sinus Disease, D. Bryson Delavan, New York City.

The Teeth as a Cause of Pathologic Conditions in the Throat, Nose and Ear, Kate W. Baldwin, Philadelphia.

Angio-Neurotic Edema of the Pharynx and Larynx, Chas. W. Richardson, Washington, D. C.

Is the Operation for the Removal of Adenoids a Justifiable Surgical Procedure, and If So, Shall It Be Done in Accordance with the Principles of Surgery? Geo. L. Richards, Fall River, Mass.

Notes on Aural Vertigo, B. A. Randall, Philadelphia.

An Unusual Case of Nasal Syphilis in a Child and a Consideration of Syphilitic Nasal Tumors, Clement Theisen, Albany, N. Y.

The Diseased Middle Turbinal, Chas. H. Baker, Bay City, Mich.

Anomalies of Lateral Sinus, Mastoid Emissary Veins and Internal Jugular Veins, Emma E. Musson, Philadelphia.

Benign Tumors of the Naso-Pharynx, Francis J. Quinlin, New York City.

Conditions Complicating the Asch Operation for Deviations of the Cartilaginous Nasal Septum, Emil Mayer, New York City.

A Contribution to the Pathologic Histology of Syphilitic Ethmoiditis, J. L. Goodale, Boston.

Fibrosis of the Larynx and Trachea, Ralph W. Seiss, Philadelphia.

The Correction of Nasal Deformities by the Author's Subcutaneous Method, John O. Roe, Rochester, N. Y.

Foreign Bodies in the Air Passages, W. Scheppegegrell, New Orleans, La.

Section on **Materia Medica, Pharmacy and Therapeutics.**

Chairman, George F. Butler, Alma, Mich.; Secretary, C. S. N. Hallberg, Chicago.

Address of Chairman, George F. Butler, Alma, Mich.

The Importance of and Place in the College Curriculum: (a) *Materia Medica*, Warren B. Hill, Milwaukee, Wis.; (b) *Pharmacy*, J. Allen Patton, Chicago; (c) *Therapeutics*, Hobart Amory Hare, Philadelphia.

The U. S. Pharmacopeia of 1900; Its Importance to Practitioners, Joseph P. Remington, Philadelphia.

The Goat in Ancient and Modern Medicine and Therapy, Frank W. Jay, Chicago.

The Relative Toxicity of Brucin and Strychnin, Leon L. Solomon, Louisville, Ky.

The Mydriatic Drugs and Their Active Principles: (a) *Chemistry of the Tropeins*, Albert B. Lyons, Detroit; (b) *Physiologic Action*, Horatio C. Wood, Jr., Philadelphia; (c) *Ophthalmologic Relations*, Charles A. Oliver, Philadelphia.

The Cardiac Stimulants, Jos. M. Patton, Chicago.

The Cardiac Sedatives. L. Faugeres Bishop, New York City.

Pneumonia: Venesection and Counter-Irritation, James Tyson, Philadelphia.

Pneumonia: Its Drug-Treatment, Arthur A. Stevens, Philadelphia.

Wintergreen Oil in Constitutional States, Gustav Fütterer, Chicago.

Intra-organic Treatment of the Pneumonic Lung, W. Byron Coakley, Chicago.

Diabetes, Diet: Rationale and Practical Limitations, Arthur L. Benedict, Buffalo, N. Y.

Glycosuric Symptom of Disease and Its Medicinal Treatment, Heinrich Stern, New York City.

Some New Sugar Tests, Albert B. Lyons, Detroit.

Diuretics: Their Comparative Value; William L. Baum, Chicago.

Alcoholics in Therapy, J. Moore Soniat, New Orleans.

American Mineral Springs, George H. Fish, Saratoga Springs, N. Y.

Constipation; Its Therapeutic Significance, James G. Kierman, Chicago.

Cutaneous Therapy: Some of the Newer Methods, Charles W. Allen, New York City.

The External Preparations and Their Therapy, Carl S. N. Hallberg, Chicago.

The Organic Mercury Compounds Compared with the Inorganic, Thomas J. Mays, Philadelphia.

Antitoxin in Diphtheria, Thomas L. Coley, Philadelphia.

The Uterine Tonics, John N. Upshur, Richmond, Va.

Nerve Nostrums and Their Dangers, William P. Spratling, Sonyea, N. Y.

Hypnotics, Analgesics and Resultant Drug Addictions, Smith Ely Jelliffe, New York City.

Dosage of Liquid Medicines: A Simple Plan for Greater Accuracy and Metric Measures, Carl S. N. Hallberg, Chicago.

Section on **Physiology and Pathology.**

Chairman, Frank B. Wynn, Indianapolis; Secretary, Joseph McFarland, Philadelphia.

The Pathology of Asthma, with Special Reference to Its Vicious Circles, George N. Jack, Depew, N. Y.

Skin Lesions of Smallpox, J. F. Schamberg, Philadelphia.

Some Comparative Studies in Tuberculosis, E. A. de Schweinitz, Washington, D. C.

The Histologic Changes in the Tissues in Banti's Disease, Joseph Sailer, Philadelphia.

Present Status of the Blood Plates in Physiology and Pathology, George T. Kemp, Champaign, Ill.

A Case of Perforation of the Normal Intestine by an *Ascaris Lumbricoides*; Specimen; Literature. Louis C. Ager, Bay Ridge, N. Y.

Ankylostomiasis in the South. Report of Cases and Presentation of Specimens. Claude A. Smith, Atlanta, Ga.

The Clinical Application of the Thyroid Gland, L. Breisacher, Detroit, Mich.

Recent Investigations of the Mechanics of Digestion, W. B. Cannon, Boston.

The Chest-Pantograph; Its Physiologic Significance and Its Clinical Application, Winfield S. Hall, Chicago.

A Demonstration of the Movements of the Stomach and Intestines, W. B. Cannon, Harvard, Boston.

The Laboratory Method of Teaching the Medical Sciences, Accompanied by Exhibit of Some New Physiologic Apparatus, W. T. Porter, Boston.

Exhibit of Some New Physiologic Apparatus, W. T. Porter, Boston.

The Influence of Tuberculosis Upon the Respiratory Quotient, T. M. Alderhold, Chicago.

Identity of Nerve Force and Electricity, J. Emmet O'Brien, Seranton, Pa.

On Some Rare Forms of Chronic Peritonitis Associated with Productive Fibrosis and Hyalin Degeneration, A. G. Nicholls, Montreal, P. Q.

Post-Mortem Examinations, W. D. Haines, Cincinnati.

Discussion: The Best Methods of Teaching Pathology, Ludvig Hektoen, Chicago; F. F. Westbrook, Minneapolis; Frank B. Wynn, Indianapolis; Joseph McFarland, Philadelphia.

Paper (promised), Alfred Stengel, Philadelphia.

Paper (promised) F. F. Westbrook, Minneapolis.

The Clinical and Pathologic Aspects of Rabies, D. J. McCarthy and M. P. Ravenel, Philadelphia.

A Case of Typhoid and Meningitis with Pseudo-Diphtheria Bacillus in the Brain, A. P. Ohlmacher, Chicago.

Points Relative to Precipitins, W. A. Evans and Adolph Gehrmann, Chicago.

Observations on the Absorption of Albumins and Globulins, Charles T. McClintock, Detroit, Mich.

Bacterial Poisons, Victor C. Vaughan, Ann Arbor, Mich.

A Note on the Chemical Diagnosis of Hypernephroma of the Kidney, A. O. J. Kelly and A. C. Croftan, Philadelphia.

Case of Endothelioma of Pleura, W. E. Robertson, Philadelphia.

SYMPOSIUM UPON CARCINOMA.

On Lepidomata and Hylomata, George Adami, Montreal.

Cell Implantation in the Production of Tumors, Leo Loeb, Chicago.

A Contribution to the Study of the Production of Endothelioma of the Dura and Brain, D. J. McCarthy, Philadelphia.

Endothelioma of the Gall-Bladder, W. Becker, Milwaukee, Wis.

The Growth of the Tubercle Bacillus and Other Organisms Resembling the Tubercle Bacillus upon Fruits and Vegetables, M. J. Rosenau, Washington, D. C.

Clinical Methods of Determining Blood-Pressure, Joseph Erlanger, Baltimore.

THE SARATOGA SPRINGS MEETING

SITUATION.

Saratoga Springs has become the favorite convention town of the United States for national organizations of every kind. It owes this distinction partly to its natural advantages and partly to its unequaled—indeed, we might say, its unapproached—facilities for the entertainment of such gatherings. Nature has made it the great

HOW TO REACH SARATOGA.

Saratoga Springs is readily accessible from the south and west by the lines of the Vanderbilt system, the New York Central and the West Shore and Boston & Albany roads, bringing their passengers to Albany and Schenectady, from which points the Delaware & Hudson have but a short run to the Spa. From the north,



PART OF REGISTRATION ROOM.

health resort of this continent and one that is not surpassed in its comforts and attractions anywhere in the world. Situated on a plateau at the end of the foothills of the Adirondacks, a region deservedly famed for its salubrity, it has an elevation of three hundred and twelve feet above tide water level and is swept by the breezes of the great northern forests. The celebrity of Saratoga is, however, largely owing to its natural mineral waters.

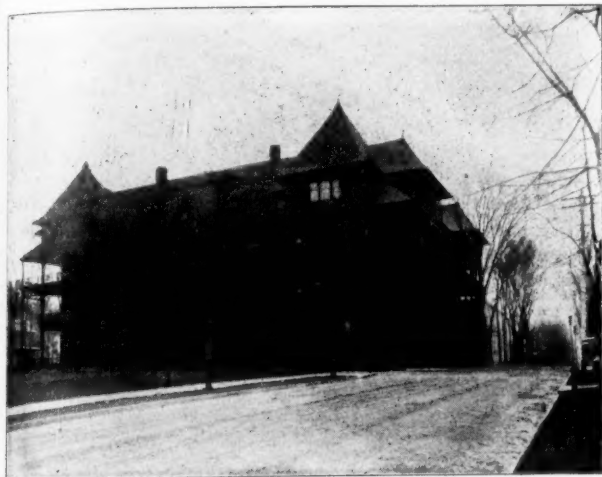
the Delaware and Hudson gives connection with the Canadian lines and with several New England systems. By the Boston & Maine, Massachusetts and other parts of New England find easy access directly to the village. The fine river steamers plying on the Hudson, both by day and by night, afford a charming trip to those who choose to travel by water. Arrangements for reduced rates have not been perfected as yet, but it is absolutely assured that a concession of a fare

and a third will be given, with the possibility that a further reduction in the rate may be granted.

MINERAL SPRINGS.

The mineral springs of Saratoga have a world-wide fame. There are more than forty of them and they are not more remarkable for their number than they are for their variety. They embrace many kinds of mineral waters, saline, alkaline, chalybeate, sulphur, lithia, etc.,

of several acres, with forest trees; fountains and flowers, broad walks and large greenswards, which are as unique as they are beautiful. Some of these great hostelries often accommodate as many as two thousand guests at the same time. One of these, the United States, will be the headquarters of the Association, where a band of music will give open air concerts morning and evening and where a grand reception and ball will be given on



WINDSOR HOTEL.



KENSINGTON HOTEL.

with a wide range of both hygienic and therapeutic action. It will be an additional matter of interest to the members of the convention to have the opportunity to familiarize themselves with these marvelous fountains of health and become acquainted with the special virtues of each one of them.

Wednesday evening of the convention week. There are, in addition to these large hotels, more than 150 smaller hotels and boarding houses, accommodating comfortably over 10,000 guests.

Saratoga Springs is so compactly built that most of these houses are in the vicinity of Convention Hall,



WORDEN HOTEL.

HOTELS.

There are no summer resort hotels anywhere that can be compared with the caravansaries of Saratoga. They are not the frail combustible structures one generally associates with the idea of the accommodations at a watering place, most of them and all the larger ones being solid, practically fire-proof buildings of brick, stone and iron. Some of them cover all, or practically all of a block, with courtyards which are really parks



ADELPHI-AMERICAN.

where the general sessions will be held, and none of them is more than three minutes walk away. This is a matter of great importance, facilitating the interchange of friendly visits, and promoting that social intercourse which is one of the most charming features of such a gathering.

Below we give a list of the important hotels of Saratoga Springs, with prices. Besides those mentioned there are a number of boarding houses whose rates vary

from \$1 to \$2 per day. The chairman of the committee on hotels is Dr. J. R. Swanick, Saratoga Springs, who will be glad to engage rooms in advance for those who will write to him :

Hotels.	Accommodations.	Single rooms.	Single rooms, with bath.	Double rooms.	Double rooms, with bath.
Grand Union	1500	\$4 00 up	\$6 00 up	\$8 00 up	\$10 00 up
United States	1200	4 00-5 00	6 00-7 00	8 00-10 00	10 00-12 00
American-Adelphi	300	3 00-4 00	4 00-5 00	6 00-8 00	8 00-10 00
Kensington	500	3 00-4 00	4 00-5 00	6 00-7 00	8 00-10 00
Columbian Hotel	250	3 00	3 00	5 00	5 00
Worden Hotel	250	3 00	3 00	6 00	6 00
Everett House	200	2 50	2 50	4 00	4 00
Huestis House	200	2 00	2 00	4 00-5 00	4 00-5 00
The Commercial	150	2 50	3 00	4 00	5 00
Hotel Continental	150	2 00	2 00	3 00	3 00
Franklin House	150	1 50-2 00	2 00	3 00	3 00
Vermont House	125	2 50	2 50	5 00	5 00
The Carlsbad	100	2 00	2 50	3 00	4 50
Woodbridge Hall	100	2 00	2 00	3 00	3 00
Elmwood Hall	100	1 35	1 35	2 00	2 00
The Waring	75	2 00	2 00	3 00	3 00
Spencer House	75	2 00	2 00	3 00	3 00
The Linwood	50	2 50	2 50	4 00	4 00
The Washburne	50	2 00	2 00	3 00	3 00
The Moriarta	50	3 00	Suite.	6 00	Suite.
The Ashton	50	2 50	2 50	4 00	4 00
Broadway House	50	2 50	2 50	4 00	4 00
Pleasant Home	40	2 50	2 50	4 00	4 00
Washington Hall	35	2 00	2 00	4 00	4 00
Summer Rest	35	2 00-2 50	2 00-2 50	4 00	4 00

PARKS AND PLEASURE GROUNDS.

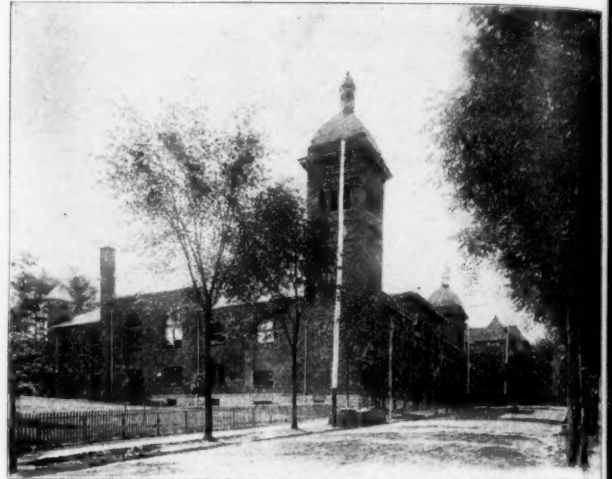
Saratoga is itself a splendid park, with broad shaded avenues, with hundreds of elegant villas and spacious



GRAND UNION HOTEL, BROADWAY FACADE.

mansions to delight the eye of the visitor. But there are special grounds set apart for the enjoyment of guests. One of these, the Congress Spring Park, almost immediately joins the Convention Hall. It is ten or fifteen acres in extent, with handsome spring pavilion and a long colonnade, a miniature lake over which a music stand is built and where a band concert will be given on Wednesday morning. The grounds are diversified with hill and dale, there is a trout pond and deer paddock; altogether it is said to be the finest park of its size in the world. Adjoining the village limits on the north is the famous Woodlawn Park, the country seat of the late Judge Henry Hilton of New York. These magnificent grounds, open to the public, comprise over two thousand acres, with lake, forest, fine villas, and over twenty miles of smooth solid roadways. The views through vistas are wonderful in their sweep. To the east one can see the Green Mountains; to the south the Catskills are visible, and to the west are the lovely and picturesque Kaya-

derosseras Hills, a spur of the Adirondacks. East of the village, a drive of one mile from the Convention Hall brings one to the Saratoga Racing Park, upon which more than \$250,000 has been expended since last summer, making it the most splendid racing park in either Europe or America. It can be visited by carriage or, if one prefers, on foot, as there is a paved sidewalk extending all the way to the entrance gates. Immediately east of the park lie the magnificent grounds of



CONVENTION HALL.

“Yaddo,” the country home of Mr. Spencer Trask, the New York Banker. These grounds are open also to carriages or pedestrians. The great stone mansion, with its lofty and spacious terrace and the finest rose garden in America will be found of surpassing interest.



TOWN HALL.

OTHER ATTRACTIONS IN THE VICINITY.

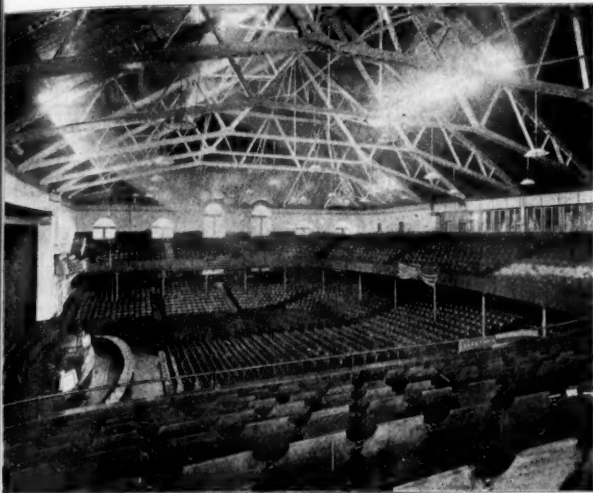
Extending east and west, a couple of blocks north of the racing park, is the recently completed speedway. It is an extension of one of the village streets, over a mile in length, with a roadway for speeding sixty feet wide and a carriage drive thirty feet wide on either side, separated from the speedway proper by strips of lawn set out with forest trees. Four miles east is Saratoga Lake, reached by a wide avenue and also by a trolley

line. This is a lovely sheet of water, with picturesque shores, on which are many hotels famed for their fish and game dinners. Saratoga Lake has been the scene of many regattas, including those of the Intercollegiate Rowing Association, where no less than fourteen crews once contested for supremacy. The lake is supplied with steam launches, which may be chartered by excursion parties, some of them also making regular trips through the lake, which is nine miles long and three

Close to the golf links and a little to the north, the Saratoga Polo Association has its beautiful grounds. Although this association is not old in years, it has already achieved distinction in the polo world and under its direction this year, from July 28 to August 9, there will be held the championship contests of the country.

EXCURSIONS.

Saratoga offers many delightful excursions. To the north, six miles distant, is Mt. McGregor, on whose sum-



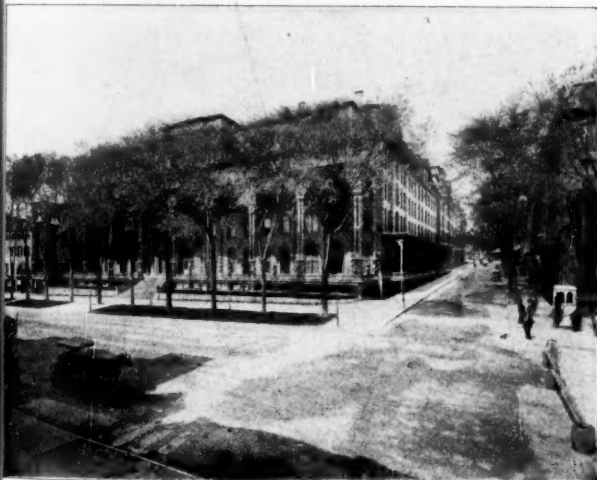
INTERIOR OF CONVENTION HALL.



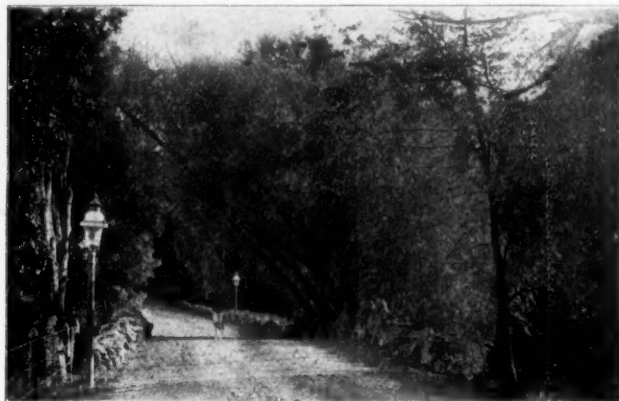
CONGRESS HALL.

miles wide at the widest part. It is a great fishing ground and rowboats may also be secured with fishing outfits for those fond of piscatorial sport. South of the village, one mile away, is the remarkable group of gey-

mit Gen. U. S. Grant spent the closing days of his life. The cottage in which he died is in charge of a government custodian and is kept unchanged, as it was while Gen. Grant occupied it. It is open to visitors and is accessible by a good carriage road. On the western side of the mountain, along which the Hudson River flows,



UNITED STATES HOTEL. HEADQUARTERS.



IN "YADDO."

ers, or spouting springs, which may be visited by carriage or trolley. Just to the west of the village and reached by a fine drive are the beautiful grounds of the Saratoga Golf Club, by many said to be, for their extent, the most perfect links in the United States. The club is always glad to extend its courtesies to transient guests and to those who remain for any length of time it extends the privilege of temporary membership under proper restrictions.

is the great dam across this historic stream. From this waterpower, electric machines are to be operated for supplying the motive force for manufacturing establishments within a radius of fifty miles.

Some thirty miles to the north lies Lake George, renowned for its grand scenery and historic associations. This may be reached by steam or trolley railroad. An excursion to Lake George will be made during the convention.

Luzerne, a thriving village with falls in the Upper Hudson and a remarkably pretty lake, is only one hour away by the Adirondack railroad. East of Saratoga, a half hour by rail, is Schuylerville, where a noble battle monument overlooks the scene of Burgoyne's surrender, and the Burgoyne battlefield near by. The points where the decisive struggle for American Independence was made are plainly marked by tablets suitably inscribed.

Among the excursions contemplated from Saratoga Springs following the meeting is a nine days' trip, starting June 13, through Lake George and Lake Champlain,

IN SARATOGA SPRINGS.

There are many interesting features in the village itself. Among these is the Pompeia, adjoining the Convention Hall. This is an exact reproduction of the "House of Pansa." The rooms, furniture, decorations, statues, etc., are of exceeding interest. The hotels and the many mineral springs will be found filled with interest. The Saratoga Baths, one of the finest bath houses in the United States, will be found exceedingly interesting to all members of the convention. Saratoga's fine water supply and modern system of sewage disposal are well worthy of attention.



ON THE LINKS.

passing historic "Fort Ti," reaching Burlington, the "Queen City" of Vermont, and taking an electric car ride to the U. S. Army Post; then to Montreal, Saturday morning visiting the famous Lachine Rapids and the sights of the city, and Sunday p. m., a sail down the St. Lawrence to Quebec. Monday evening the party will go by special train to the White Mountains and stop there until Wednesday, when the party will journey past many points of interest to Poland Springs, stopping there on invitation of the proprietors; thence to Boston, where a reception will be tendered and a carriage drive about the city given. Further information in regard to this trip can be obtained by addressing Dr. Edward R. Campbell, Bellows Falls, Vt.

MEETING PLACES.

The feature of the Saratoga meeting which will unquestionably meet with the favorable consideration of those who are in attendance and will redound to the credit of Saratoga as a convention city will be found in the close proximity of the various places of meeting. Three minutes' walk is the outside time measurement required to walk between the most remote sections. The places of meeting are as follows:

- General Sessions, Convention Hall, Broadway.
- Post-office, General Exhibits, Bureau of Registration, Bureau of Information, Hathorn Spring Building, Spring St.
- Practice of Medicine, Grand Union Parlors.

Pathologic Exhibits, Congress Hall ballroom. Broadway and Spring St.

Obstetrics and Diseases of Women, Theater Saratoga, Philadelphia St., just east of Broadway.

Surgery and Anatomy, Patterson Spring Building, Philadelphia St., opposite Theater.

Hygiene and Sanitary Science, United States Hotel, Broadway and Division St.

Ophthalmology, Laryngology and Otology, Y. M. C. A. Building, Broadway, opposite Caroline St.

Diseases of Children, Parish House, 17 Washington St.
Stomatology, G. A. R. Hall, Post-office Building, opposite U. S. Hotel.

Nervous and Mental Diseases, Grand Union Hotel.

Cutaneous Medicine and Surgery, American Hotel, Broadway, opposite Philadelphia St.

Materia Medica, Pharmacy and Therapeutics, Grand Union Hotel.

House of Delegates, Supreme Court Room, Town Hall.

Trustees, Judicial Council, United States Hotel.

The Convention Hall, where the general meetings will be held, is in the heart of the village. It is one of the largest and best-equipped places for great assemblages in the United States. It has seats for five thousand people, with stage, telegraph facilities, committee rooms and everything else required for the speedy and successful dispatch of business.

The General Exhibit will be displayed in the Hathorn Springs Building, an immense room on the ground floor, within a block of Convention Hall. Under the same roof will be found the Post-office, Telegraph Office and the Bureaus of Information and Registration. The various sections will hold their sessions in hotel parlors and halls, in close proximity to each other.

SCHEDULE OF ENTERTAINMENT.

The entertainments include the following:

Tuesday evening, June 10, Piazza Concert at the United States Hotel. Mr. Thomas Impett, the celebrated Troy tenor and a quartette will sing a number of selections.

Wednesday morning, Concert in Congress Spring Park.

Wednesday afternoon, carriage drive about village and reception at "Yaddo."

Wednesday evening, Reception and Ball at United States Hotel. The large interior court of the hotel will be brilliantly illuminated with colored lanterns, as though prepared for a garden party.

Thursday morning, June 12, Excursion to Lake George for the ladies.

Thursday evening, President's Reception at the United States Hotel.

To fully appreciate the unique interest of these entertainments and excursions, the reader should notice the descriptions of Congress Spring Park, Yaddo, Lake George, etc., in preceding paragraphs of this article.

The Committee of Arrangements for this meeting has been fortunate in having the warm support of the Saratoga Business Men's Association and of the community at large in its efforts to make adequate preparation for the coming of the American Medical Association.

Under the direction of the officers of the A. M. A. great care has been exercised in making the plans for the entertainment of our guests. It was early impressed upon the committee that the scientific work of the meeting must have first place and that nothing should be permitted to interfere with this, the primary object of the meeting. For this reason, certain features which have appeared on the programs of entertainment heretofore, have been eliminated this year and, so far as the Committee has received information from members of the Association, this action has been most heartily commended. It need not be feared from the foregoing explanation, however, that there will be any lack of the elements which go to make up the social features which add so greatly to the pleasure of the annual gatherings.

Any special or further information will be promptly and cheerfully supplied by addressing

DR. GEO. F. COMSTOCK,

Chairman, Committee of Arrangements.

Precautions Necessary with Hydrogen Dioxid.—Two professors at Lyons, France, have recently called attention to the ready absorbability of hydrogen dioxid and the consequent danger of fatal gaseous embolism from bubbles of oxygen forming in the blood after absorption, when it is applied to an open wound or to detach an adherent dressing. In contact with the blood, as with pus, the effervescence continues. The oxygen is disposed of by the oxyhemoglobin in the blood if the amount is small, and no harm results. Inflamed tissues are peculiarly active in decomposing the dioxid, and absorption is always slow and gradual in all cases. Crolas advises rendering the dioxid alkaline by adding a saturated solution of sodium borate, a drop at a time, until litmus paper, first reddened by the dioxid, regains its blue color. Even aside from the fear of gaseous embolism the dioxid should always be neutralized, as it is liable to contain more or less sulphuric, phosphoric, or other acids. It should never be used stronger than eight to ten volumes, and always fractionated and in moderate amounts. With these precautions there need be no fear of the slightest evil effects from its use.—*Pacific Medical Journal*.

Alcohol Corrodes.—Physicians who have read that absolute alcohol is used at Johns Hopkins Hospital for sterilizing and those who have found that its use is corroding will be interested in a statement from *Science*. The action of alcohol on metal is peculiar. Dr. Malmjac in his experiments used 95 per cent. alcohol, which left no residue on evaporation. The metals, copper, iron, tin, lead, zinc and galvanized iron, were corked up with alcohol in glass flasks and kept at ordinary temperatures for six months. The copper was entirely unacted upon, but in all the other flasks there was a deposit on the bottom and the metal was covered with a similar deposit. In the case of tin, lead, zinc and galvanized iron the deposit was white; that from the iron was red, resembling iron rust. All of the liquids, except that in which the lead had been placed, filtered clear; the latter retained a milky appearance after repeated filterings through double filters. The clear filtrates from iron, lead, zinc and galvanized iron gave much residue on evaporation, while the residue from tin was hardly appreciable. In the former cases it is clear that not only had the metal been oxidized, but a considerable quantity had entered into the solution. These experiments have an important bearing on the storing and shipping of alcohol.

Married.

GUSTAV KOEHLER, M.D., to Miss Alma Lewert, both of Chicago, April 24.

JAMES J. MOONEY, M.D., to Miss May Cronyn, both of Buffalo, N. Y., April 29.

NUMA T. WESTON, M.D., Colfax, Iowa, to Mrs. Evalyn Swan, at Jewell Junction, Iowa.

DAVID H. COOMBS, JR., M.D., to Miss Mayme Beeler, both of Charlestown, Ind., May 7.

STANLEY SMITH, M.D., Allegheny, Pa., to Miss Sophia Lavens of Bradford, Pa., April 24.

HARRISON JOSEPH TRASK, M.D., to Miss Clara Azelia Wells at St. Joseph, Mich., April 11.

JOHN E. COULTER, M.D., to Miss Fannibelle Bradley, both of De Smet, S. Dak., April 28.

JAMES T. MCGOVERN, M.D., to Miss Teresa Jene Lennon, both of Rochester, N. Y., April 21.

JOHN M. ADAMS, M.D., Ritzville, Wash., to Miss Myrtle M. Graham of Spokane, April 17.

JOHN T. COBB, M.D., Buchanan, Ga., to Mrs. Hoppie Weaver of Polk County, Ga., January 26.

LEDRA HEAZLITT, M.D., Auburn, N. Y., to Miss Norma R. Smith of Dundee, N. Y., April 23.

OTTO J. STEIN, M.D., Chicago, to Miss Evelyn Deming Daugherty of Dubuque, Iowa, April 29.

CHARLES R. HAMMAT, M.D., to Miss Hazel H. Taylor, both of Portsmouth, Ohio, at Vanceburg, Ky., April 24.

HARRY BAPTIST, M.D., Joy Depot, Albemarle County, Va., to Miss Margaret Esther Boyle of Fredericksburg, Va., April 21.

FRANK M. HERMAN, M.D., New York City, to Miss Jessie L. Stockton of Buenos Aires, Argentine Republic, at Boston, Mass., April 30.

Deaths and Obituaries.

Frederick A. Castle, M.D. Bellevue Hospital Medical College, New York, 1866, a widely-known physician of New York City, died at Roosevelt Hospital in that city after an illness of six months, aged 59. Dr. Castle was a student in Bellevue when the Civil war commenced. Without waiting to take a degree, he, with a number of other young men, formed the Medical Cadet Corps, which was sent to the front as a part of the Medical Department of the Army. He later left this organization and served for two years in the navy. Toward the close of the war he returned to Bellevue, where he was graduated. He became widely known in the profession through his editorial work in connection with numerous medical journals. For a time he occupied the chair of therapeutics at Bellevue, and was later visiting physician at the Presbyterian Hospital. He was largely interested in the building of the Academy of Medicine, and was once its treasurer.

George King, M.D. College of Physicians and Surgeons, New York, 1847, the oldest physician of Franklin, Mass., died at his home in that place, April 25, from heart disease, after a week's illness, aged 80. For nearly three years he served in the Civil war as surgeon of the Sixteenth and the Twenty-ninth Massachusetts Volunteer Infantry. He was taken prisoner at Petersburg, Va., and confined in Libby Prison. He was a member of the Massachusetts Medical Society, the Norfolk County Medical Society and the Thurber Medical Society.

Joseph W. Holland, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1874, prominent as a railway surgeon, ex-president of the Southwestern Iowa Medical Association, member of the International Association of Railway Surgeons and of the Iowa State Medical Society, for more than 25 years a practitioner of Osceola, Iowa, died at a hospital in Chicago, April 25, after an illness of two weeks, aged 58.

Pembroke R. Thombs, M.D. Rush Medical College, Chicago, 1862, a well-known physician of Pueblo, Colo., and for a number of years superintendent of the State Hospital for the Insane, died at his home in Pueblo, April 28, after an illness of two weeks, aged 62. He served as surgeon through the Civil war and at its close located in Colorado.

William V. Hazeltine, M.D. Long Island College Hospital, Brooklyn, N. Y., 1883, a practitioner of Warren, Pa., since 1869, one of the organizers and one-time president of the

Warren County Medical Society, and a member of the Medical Society of the State of Pennsylvania, died at his home in Warren, April 23, from pneumonia, after a short illness, aged 62.

Charles Abner Phelps, M.D. Harvard University, 1844, who practiced in Boston for a time, but afterward devoted his attention to politics, serving as member and speaker of the house, and senator and president of the senate, surveyor of the Port of Boston, consul at Prague, etc., died in Boston, April 27, aged 81.

Charles H. Dougal, M.D. University of Pennsylvania, Philadelphia, 1864, a well-known practitioner of Milton, Pa., died at his home in that place from apoplexy, April 26, aged 67. He was a medical cadet during the Civil war, and was captured and confined in Libby Prison.

James Nott Moore, M.D. Medical College of the State of South Carolina, Charleston, 1859, for many years a practitioner of Spartanburg, S. C., and during the Civil war a surgeon in the Confederate service, died at his residence in Columbia, S. C., April 25, aged 65.

Jacob Deutsch, M.D. University of Budapest, 1867, a member of the American Medical Association, Tri-State Medical Society and Tennessee State Medical Society, died at his home in Memphis, April 19, aged 62.

Matthew H. Molloy, M.D., M.R.C.S. England, 1867, medalist of the Carmichael School of Midwifery, Dublin, a practitioner of Roxbury for about ten years, died at his home in that place, April 23, aged 62.

Charles Angell, M.D. Castleton (Vt.) Medical College, 1846, who had practiced in Pittsburg, Ind., for fifty-six years, and was a veteran of the Civil war, died at his home in Pittsburg, April 18, aged 79.

Samuel S. Wiest, M.D. New York University, 1854, one of the oldest practitioners of Lancaster County, died at his home in Schoeneck, Pa., April 27, from valvular heart disease and dropsy, aged 74.

Alexander J. McCullough, M.D. Western Reserve University, Cleveland, 1882, died at Spencer Hospital in Meadville, Pa., after a short illness, from congestion of the brain, April 26, aged 49.

Calvin A. Mann, M.D. Washington University, St. Louis, 1858, of Chester, Ill., a veteran of the Civil war and a prisoner in Libby Prison, died recently and was buried at Chester, April 19.

Cornelius A. Johnson, M.D. University of Michigan, 1889, division surgeon of the Grand Rapids and Indiana Railway, died at his home in Marcelona, Mich., April 28, after a long illness.

Otis O. Whittington, M.D. Missouri Medical College, St. Louis, 1897, of Coffeen, Ill., died at his father's home near Herrick, Ill., April 13, from hemorrhage of the lungs, aged 32.

James Taylor, M.D. Jefferson Medical College, Philadelphia, 1851, the oldest practitioner in Westmoreland County, Pa., died at his home in West Fairfield, April 30, aged 85.

Leonard P. Holden, M.D. Pennsylvania Medical College, Philadelphia, 1858, for nearly thirty years a practitioner of Boston, died at his home in that city, April 20, aged 78.

Philip F. Fulmer, M.D. University of Pennsylvania, 1853, of Dingman's Ferry, Pa., died suddenly from heart disease at Middletown, N. Y., April 29, aged 80.

James P. Lytle, M.D. Washington University, St. Louis, 1874, a former resident of Princeton, Ill., died at Anna, Ill., from cerebral hemorrhage, April 19.

William L. Grim, M.D. Western Reserve University, Cleveland, Ohio, 1875, died from pneumonia at his home in West Washington, Pa., April 24, aged 63.

Henry Harrison Arnold, M.D. University of Heidelberg, Germany, died at his home in Washington, D. C., April 20, after a long illness, aged 54.

F. Antes Canfield, M.D. Rush Medical College, 1872, the pioneer physician of Juneau County, Wis., died at his home in Necedah, April 22, aged 71.

Fernando C. Gay, M.D. St. Louis College of Physicians and Surgeons, 1888, of Alto Pass, Ill., died after a prolonged illness, April 26, aged 54.

J. Walter Rowland, M.D. Kansas City (Mo.) Medical College, 1895, of Herndon, Kan., was shot and killed by an unknown person, April 28.

Edward T. Tinch, M.D. Medical College of Ohio, Cincinnati, 1878, died at his residence in Freetown, Ind., April 20, after a long illness.

James H. Crain, M.D. College of Physicians and Surgeons, New York, 1850, died at his home in Beechwood, Ill., April 28, aged 74.

Levi E. Pickett, M.D. Rush Medical College, 1897, died at his home in Lineville, Iowa, April 22, after a short illness, aged 28.

John W. Roe, M.D. Omaha Medical College, 1884, died at the Presbyterian Hospital, Omaha, April 24, after a long illness, aged 74.

William M. Wilson, M.D. Southern Medical College, Atlanta, Ga., 1887, died at his home in Cleveland, Tenn., April 18.

E. Fred Russell, M.D. Rush Medical College, a physician of Poyntette, Wis., died at Madison, Wis., April 29, aged 68.

Joseph P. Turner, M.D. Jefferson Medical College, 1878, died at his home in Trenton, N. J., April 27, aged 79.

Societies.

COMING MEETINGS.

American Medical Association, Saratoga Springs, N. Y., June 10 to 13.

American Therapeutic Society, New York City, May 13, 1902.
Utah State Medical Society, Salt Lake City, May 13-14, 1902.
Oklahoma Territory Medical Association, Oklahoma City, May 14, 1902.

Arkansas Medical Society, Little Rock, May 13-15, 1902.
New Hampshire Medical Society, Concord, May 15-16, 1902.
Illinois State Medical Society, Quincy, May 20-22, 1902.
Medical Association of the State of Missouri, St. Joseph, May 20-22, 1902.

Arizona Medical Association, Tucson, May 21-22, 1902.
Medical Society of West Virginia, Parkersburg, May 21-23, 1902.
Medical Association of Montana, Anaconda, May 21-22, 1902.
Iowa State Medical Society, Des Moines, May 21-23, 1902.
Indiana State Medical Society, Evansville, May 22-23, 1902.
American Pediatric Society, Boston, May 26-28, 1902.
American Laryngological Association, Boston, Mass., May 26-28, 1902.

American Gynecological Society, Atlantic City, May 27, 1902.
Connecticut Medical Society, New Haven, May 28-29, 1902.
Ohio State Medical Society, Toledo, May 28-30, 1902.
American Laryngological, Rhinological and Otolological Society, Washington, D. C., June 2-4, 1902.

American Surgical Association, Albany, N. Y., June 3-5, 1902.
Louisiana State Medical Society, Shreveport, June 3-5, 1902.
Maine Medical Association, Portland, June 4-6, 1902.
Rhode Island Medical Society, Providence, June 5, 1902.
Wisconsin State Medical Society, Milwaukee, June 4-6, 1902.
South Dakota State Medical Society, Scotland, June 4-5, 1902.
Association of Military Surgeons of the United States, Washington, D. C., June 5-7, 1902.

American Orthopedic Association, Philadelphia, Pa., June 5-7, 1902.
American Academy of Medicine, Saratoga Springs, N. Y., June 7, 1902.

American Association of Life Insurance Examining Surgeons, Saratoga Springs, June 9, 1902.

National Confederation State Medical Examining and Licensing Boards, Saratoga Springs, N. Y., June 9, 1902.
Association of American Medical Colleges, Saratoga Springs, N. Y., June 9, 1902.

American Climatological Association, Los Angeles, Cal., June 9-11, 1902.
American Proctological Association, Saratoga Springs, N. Y., June 10, 1902.

Medical Society of Delaware, Newark, June 10, 1902.
Massachusetts Medical Society, Boston, Mass., June 10-11, 1902.
Medical Society of the State of North Carolina, Wilmington, June 10-14, 1902.

Colorado State Medical Society, Pueblo, June 17, 1902.
American Medico-Psychological Association, Montreal, June 17-20, 1902.

Minnesota State Medical Society, Minneapolis, June 18, 1902.
Medical Society of New Jersey, Atlantic City, June 24-26, 1902.
Washington State Medical Society, Tacoma, June 24-26, 1902.
Michigan State Medical Society, Port Huron, June 26-27, 1902.

Association of Central Railway-of-Georgia Surgeons.—At the annual meeting of this Association in Savannah, April 15, Dr. James B. Morgan, Augusta, was elected president.

Delta County (Mich.) Medical Society.—The annual meeting of this Society was held in Gladstone, April 23. Dr. David N. Kee, Gladstone, was elected president; Dr. H. W. Long, secretary, and Dr. Andrew Nelson, Escanaba, treasurer.

New Haven County (Conn.) Medical Society.—At the semi-annual meeting of this Society, held in Ansonia, April 17, Dr. P. Frederiek Metz, formerly a practitioner of New Haven, was formally expelled from the Society on account of illegal practices.

Mercer County (Ill.) Medical Society.—At a meeting of physicians at Aledo, April 17, preliminary steps were taken to

form a county medical society. Dr. George Irwin, Aledo, was made temporary chairman and Dr. Albert N. Mackey, Aledo, temporary secretary.

Bristol North District (Mass.) Medical Society.—At the annual meeting of this Society, April 18, Dr. Charles S. Holden, Attleboro, was elected president; Dr. W. Y. Fox, Bristol, vice-president and treasurer; Dr. Ralph D. Dean, secretary, and Dr. H. B. Baker, librarian.

Rockland County (N. Y.) Medical Association.—This Association held its annual meeting at Suffern, April 16. Dr. Gerrit F. Blauvelt, Nyack, was elected president; Dr. Daniel B. Van Wagenen, Suffern, vice-president, and Dr. Norman B. Bayley, Haverstraw, secretary.

Austin Flint Medical Association.—At the annual meeting of this body held at Osage, Iowa, April 15, Dr. J. Clinton Powers, Hampton, was elected president; Dr. John C. Wright, Clear Lake, Iowa, vice-president, and Dr. Lester C. Kern, Waverly, Iowa, re-elected secretary.

Hill County (Texas) Medical and Surgical Association.—This body met at Hillsboro, April 14, and elected Dr. James J. Robert, Hillsboro, president; Dr. James A. Adams, Hillsboro, vice-president; Dr. J. M. Martin, Massey, secretary, and Dr. Allen J. Gilbert, Hillsboro, treasurer.

Fond du Lac County (Wis.) Medical Association.—At a meeting of physicians held in Fond du Lac, April 23, it was decided to form a county medical organization. Dr. Stephen E. Gavin, Fond du Lac, was elected temporary president, and Dr. Guy T. Boyd, temporary secretary.

Middlesex County (Conn.) Medical Society.—This Society, at its one hundred and tenth annual meeting, held in Middletown, April 23, elected Dr. Frank E. Potter, Portland, president; Dr. Charles H. Hubbard, Essex, vice-president, and Dr. Frank K. Hallock, Cromwell, clerk.

Windham County (Conn.) Medical Society.—This Society convened for its one hundred and ninth annual session at Wilimantic, April 10. Dr. Frank H. Coops, Danielson, was elected president; Dr. Henry R. Lowe, Putnam, vice-president, and Dr. James L. Gardner, Central Village, clerk.

Detroit Medical Society.—The annual meeting of this Society for election of officers was held, April 30, at which the following officers were elected: Dr. Frank B. Tibbals, president; Dr. Willis S. Anderson, vice-president; Dr. Louis J. Goux, secretary, and Dr. H. Wellington Yates, treasurer.

Johnson County (Ill.) Medical Association.—About twenty physicians of Johnson County met at Vienna, April 24, and organized a county association with the following officers: Dr. John McC. Damron, president; Dr. Newton J. Benson, vice-president, and Dr. Thomas E. McCall, secretary and treasurer.

Blue Earth County (Minn.) Medical Society.—This Society was reorganized at Mankato, April 21, along the lines suggested by Dr. Thomas McDavitt, secretary of the Minnesota State Medical Society. Officers were elected and Dr. J. Francis Shefcik, Mapleton, was elected a delegate to the State Society.

Macon County (Mo.) Medical and Surgical Society.—The annual election of this Society, held at Macon, April 22, resulted as follows: Dr. Charles W. Reagan, Macon, president; Dr. George F. Brewington, Bevier, vice-president; Dr. George B. Rush, Macon, secretary, and Dr. Benjamin J. Milam, Macon, treasurer.

Tolland County (Conn.) Medical Society.—The annual meeting of this Society was held at Rockville, April 15. Dr. Eli P. Flint, Rockville, was elected president; Dr. Alonzo L. Hurd, Somers, vice-president; Dr. Edwin T. Davis, Ellington, secretary and treasurer, and Dr. Cyrus B. Newton, Stafford Springs, county reporter.

Macoupin County (Ill.) Medical Society.—This Society convened in Carlinville for its semi-annual session, April 22. The following officers were elected: Dr. Harry W. Gobble, Carlinville, president; Dr. Noah A. Crouch, Chesterfield, vice-president, and Dr. J. Palmer Matthews, Carlinville, permanent secretary and treasurer.

Plymouth District (Mass.) Medical Society.—This Society held its annual meeting at Brockton, April 16, and elected the following officers: Dr. Jesse H. Averill, Campello, president; Dr. William P. Chisholm, Brockton, vice-president; Dr. Frank H. Burnett, Brockton, secretary, treasurer and reporter, and Dr. Charles E. Lovell, Whitman, librarian.

Knox County (Ill.) Medical Society.—At a meeting of Knox County physicians at Galesburg, April 22, a county society was organized with the following officers: Dr. Louis

Becker, Knoxville, president; Dr. Guy A. Longbrake, Galesburg, vice-president; Dr. George S. Bower, Galesburg, secretary, and Dr. Frederick G. Hall, Galesburg, treasurer.

Eastern Ohio Medical Society.—This Society, at its regular spring meeting, held in East Liverpool, April 24, took the initiatory step in a movement for the establishment of a state hospital for the treatment of tuberculosis and passed resolutions very strongly indorsing such an institution.

American Academy of Medicine.—The twenty-seventh annual meeting of the Academy will convene at the Kensington, Saratoga, June 7, and continue during Monday, June 9. A feature of the meeting will be an address by Edward T. Devine of the United Charities of New York, on "Co-operation of the Medical Profession in Charitable and Social Reform."

Brainerd District (Ill.) Medical Society.—The twenty-fifth annual and silver jubilee meeting of this society was held at Mason City, April 24. The following officers were elected: President, Dr. W. P. Walker, Mason City; vice-president, Dr. William V. Guttery, Middletown; secretary, Dr. James L. Lowrie, Lincoln, and treasurer, Dr. Charles C. Reed, Lincoln.

Guilford County (N. C.) Medical Society.—The organization of a county medical society was perfected at Greensboro, April 19. Dr. Millard F. Fox, Guilford College, was elected president; Dr. David A. Stanton, High Point, first vice-president; Dr. Albert R. Wilson, Greensboro, second vice-president; and Dr. Charles L. Scott, Greensboro, secretary and treasurer.

Worcester North District (Mass.) Medical Society.—The forty-fourth annual meeting of this Society was held at Fitchburg, April 22. Dr. Charles E. Bigelow, Leominster, was elected president; Dr. H. Porter Hall, Leominster, vice-president; Dr. Walter F. Sawyer, Fitchburg, secretary; Dr. Eustace L. Fiske, Fitchburg, treasurer, and Dr. Atherton P. Mason, Fitchburg, librarian.

District Medical Society of Hunterdon County, N. J.—This Society held its annual meeting in Flemington, April 22. The following officers were elected: Dr. Howard Servis, Junction, president; Drs. William H. Schenck, Flemington, and Leon T. Salmon, Lambertville, vice-presidents; Dr. I. S. Cramer, Flemington, secretary; Dr. Obadiah H. Sproul, Flemington, treasurer, and Dr. George N. Best, Rosemont, reporter.

District Medical Society of the County of Middlesex, N. J.—The annual meeting of this Society was held in New Brunswick, April 18. Dr. Edward E. Haines, South Amboy, was elected president; Dr. William E. Ramsay, Perth Amboy, vice-president; Dr. David Stephens, New Brunswick, secretary; Dr. David C. English, New Brunswick, treasurer, and Dr. Arthur L. Smith, New Brunswick, reporter.

Windham County (Vt.) Medical Society.—The physicians of Windham County met at Brattleboro and organized a county medical society, electing the following officers to serve until the annual meeting in September: Dr. Edward R. Campbell, Belkows Falls, president; Dr. Frederick L. Osgood, Townshend, vice-president; Dr. G. R. Anderson, Brattleboro, secretary, and Dr. Ansel I. Miller, Brattleboro, treasurer.

Association of Medical Officers of the Army and Navy of the Confederacy.—This Association held its annual meeting at Dallas, Texas, April 24. The following officers were elected: Dr. William J. W. Kerr, Corsicana, Texas, president; Drs. D. H. Key, Monroe, La., Jones C. Abernathy, Birmingham, Ala., Joseph S. Tipton, Roanoke, Va., and Joel C. Hall, Anguilla, Miss., vice-presidents, and Dr. Deering J. Roberts, Nashville, secretary and treasurer.

Jo Daviess County (Ill.) Medical Society.—This Society celebrated its second anniversary at Elizabeth, April 24. Dr. Henry T. Godfrey, Galena, was elected president; Dr. George E. Miller, Hanover, vice-president; Dr. Domer G. Smith, Elizabeth, secretary; Dr. Thomas J. Stafford, Stockton, treasurer; Dr. Alfonso C. Czibulka, Warren, delegate to State Medical Society, and Dr. James C. Egan, Hanover, alternate. The Society was tendered an elaborate banquet by Drs. William Hutton and Domer G. Smith, Elizabeth.

Clark County (Ohio) Medical Society.—A joint meeting of the Clark County Medical Society and the Springfield Academy of Medicine was held at Springfield, April 24, for the purpose of amalgamating into one society on the lines laid down by the American Medical Association. The meeting lasted until midnight, when the consolidation was effected as the Clark County Medical Society. The meeting was presided over by Dr. Read L. Bell, Springfield, and Dr. J. C. Easton, Springfield, acted as secretary.

Litchfield County (Conn.) Medical Society.—The one hundred and thirty-eighth annual meeting of this body was held at Winsted, April 23. Dr. Jerome S. Bissell, Torrington, was elected president; Dr. David R. Rodger, Woodbury, vice-president; Dr. Albert E. Cobb, Falls Village, clerk; Dr. William S. Richards, Winsted, county representative, and Drs. William L. Platt, Torrington, George H. Knight, Lakeville, Jerome S. Bissell, Torrington, and Albert E. Cobb, Falls Village, members of the consulting staff of Litchfield County Hospital, Winchester.

New York County Medical Association.—At the annual meeting of this Society, held April 21, Dr. Charles Warren Allen presented a paper on "Treatment of Cancer by the X-Ray," illustrated by lantern slides and also by a number of patients. The election of officers resulted as follows: Dr. Alexander Lambert, president; Drs. Wilbur B. Marple and Frederick P. Hammond, vice-presidents; Dr. Ogden C. Ludlow, secretary; Dr. Frederic W. Loughran, corresponding secretary; Dr. Charles E. Denison, treasurer; Dr. Parker Syms, member of executive committee, and Dr. E. Eliot Harris, member of nominating committee, Fifth District Branch.

Public Health Association of California.—Health officials, sanitarians and inspectors from various cities in California met, April 14, at San Francisco, with local officers to organize a state association and arrange for a regular annual convention. About thirty were present. The plan of organization was placed in the hands of a committee, who reported in favor of a permanent association and recommended plans, which were adopted. The election of officers resulted as follows: President, Dr. Edward Van Adelung, Oakland; vice-presidents, Drs. Sylvester B. Davis, Stockton, and William Simpson, San Jose; secretary and treasurer, James A. Emery, San Francisco.

South Carolina Medical Association.—This Association held its fifty-second annual meeting at Spartanburg, April 16 and 17, about 100 physicians being in attendance. The annual address was delivered by Dr. William T. English, Pittsburg, Pa., on "The Negro Problem from the Physician's Standpoint." The annual election of officers resulted as follows: President, Dr. Manning Simons, Charleston; vice-presidents, Drs. A. Frank Darby, Columbia, Peter L. Horn of St. Georges, and Peter G. Ellison, Newberry; recording secretary, Dr. T. Prioleau Whaley, Charleston; corresponding secretary, Dr. Augustus B. Knowlton, Columbia, and treasurer, Dr. Barnard E. Baker, Charleston. The Association will meet in 1903 at Sumter, April 15 and 16.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Sixteenth Annual Meeting, held at Atlantic City, April 29-30, 1902.

President, William T. Belfield, M.D., Chicago, in the Chair.

Prostatectomy.

The first day was almost entirely devoted to the prostate gland and its removal. Dr. John P. Bryson, St. Louis, described the technic of prostatectomy and illustrated by cases and specimens. Dr. Charles H. Chetwood, New York City, spoke on the indications for operation.

Choice of Operation.

DR. HENRY H. MORTON of Brooklyn reported a case in which Bottini's operation had been performed.

Dr. Charles L. Gibson, New York, presented a specimen of a "Removal in Toto of All Three Lobes of the Prostate by Suprapubic Cystotomy," for the purpose of emphasizing how easily the prostate, or portions of it, can be removed, without destruction of tissue or hemorrhage provided one only enters the essential line of cleavage.

After discussion by Drs. Eugene Fuller, New York; Francis S. Watson, Boston, and George Chismore, San Francisco, Dr. Bransford Lewis of St. Louis discussed "Operative Treatment." The conditions favorable for the several operations in vogue were summed up as follows:

FAVORABLE FOR THE SUPRAPUBIC ROUTE: 1. General enlargement of the prostate, with extreme intravesical projection of the median or lateral lobes, diminishing their accessibility from the perineum. 2. Marked pedunculation of the intravesical tumors, with absence of obstruction from other sources.

FAVORABLE FOR THE PERINEAL ROUTE: 1. General hypertrophy, involving the lateral lobes, without extreme intravesical projection. 2. Large or very thick bar formation. 3. Severe compression of the urethra between massive lateral lobes. 4. Excessive development of the prostate in the direction of the rectum. 5. In most cases where the patient is in good general condition, is not too aged, and there is not a special indication favoring one of the other procedures.

FAVORABLE FOR THE BOTTINI: 1. Cases of extreme debility, or of extreme age, unable to stand one of the severer operations. 2. Cases of bar or median sessile obstruction, of not too great dimensions. 3. In complete collar formations. 4. Horwitz says it should be employed as a prophylactic against further obstructive tendency, at the beginning of catheter life.

DR. FRANCIS S. WATSON, Boston, read a paper on "The Phloridzin Test in Determining the Functioning Capacity of the Kidneys."

DR. F. L. STURGIS, New York, said that the removal of the prostate and ejaculatory ducts prevented the flow of the prostatic secretion, which was so essential to the vitality of the spermatozoa, and therefore tended to render the male sterile. On this account he believed that some partial operation, like the Bottini, was preferable.

Drs. Eugene Fuller and F. Tilden Brown of New York, and H. H. Young, Baltimore, and William T. Belfield, Chicago, continued the discussion.

The first day's session closed with a paper on "The Detection of Stone in the Kidney by Skiagraph, with Specimen," by Dr. James Bell, Montreal.

The second day was largely devoted to Genito-Urinary Tuberculosis.

Renal Tuberculosis.

DR. F. TILDEN BROWN, New York City, said that at the Presbyterian Hospital, during the past ten years, out of the 1427 necropsies, 258 (18 per cent.) showed tuberculous lesions somewhere in the body; 48 (18.5 per cent.) showed renal tuberculosis. Of these 48, 32 were males and 16 females; 39 had lesions in both kidneys, 9 in one kidney, 5 being in the right and 4 in the left kidney. In the 258 tuberculous bodies the kidneys were more commonly involved than the spleen, liver or adrenals. During the same time, there were in the hospital 78 cases diagnosed as renal tuberculosis; 13 (16 per cent.) had nephrectomy performed, with but one death occurring two months after the operation; at the autopsy the other kidney was found to be involved. The vast majority of autopsies showing tuberculous lesions in the kidney are of the disseminated miliary type. With such a class of patients, of course, surgeons have not to deal. At necropsies as high as 3 or 4 per cent. of healed pulmonary tuberculosis have been found; whereas it was of the rarest occurrence to find any evidence of Nature's efforts to cure renal tuberculosis. From a surgical standpoint he did not believe any surgeon would hesitate to perform an immediate nephrectomy if he were sure that one kidney contained the only appreciable focus of the tuberculosis.

Tuberculosis of the Seminal Tract.

DR. HUGH H. YOUNG, Baltimore, presented an exhaustive résumé of the literature, and his conclusions were as follows:

PATHOLOGY.—The disease may begin primarily anywhere in the tract, but it usually starts in the epididymis. The bacilli which are being constantly carried up with the testicular secretion along the vas deferens very soon localize in the ampulla of the vas, the ejaculatory duct, the seminal vesicle and the adjacent portion of the prostate. The testicle is very seldom the point of primary origin and it becomes involved secondarily generally much later than the seminal vesicles, though it seemed not to be so immune as formerly supposed. Tuberculosis frequently travels from the kidney to the prostate and from there involves the testicle, but it is almost never primary in the bladder.

TREATMENT.—There are to be found in literature 35 cases in which the seminal vesicles have been removed for tuberculosis; of these 14 will not be considered because the operator failed

to state ultimate results. Of the 21 which were followed, 6 died, 5 had recurrences and 10 were classed as well. Only 8 cases were followed over one year and, of these, 2 died, 2 had perineal fistulas and 4 were classed as cured. In only one of the six fatal cases was pulmonary involvement present before operation. Considering, then, that both seminal vesicles were involved in but 12 cases, the infrequency of lung and bladder tuberculosis, these 35 cases were not the most intensive, and with cures claimed in less than 50 per cent. and with only eight followed more than one year, the results obtained by operative removal of the tuberculous seminal vesicles were indeed unsatisfactory, and apparently not nearly so good as where a partial operation upon the external disease in the testicle alone is attempted.

DR. PAUL THORNDIKE, Boston, discussed Tuberculosis of the Testicle.

An Analysis of Ninety-Six Operations for the Relief of Tuberculosis of the Testicle.

DR. ORVILLE HORWITZ of Philadelphia presented the following conclusions to his paper: 1. A primary tubercular infection of either the epididymis or testicle may occur, the former being by far the more common. 2. A primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one. 3. Primary involvement of either the epididymis or testicle usually takes place through the circulation; the soil being predisposed to the location of the tubercle bacillus either by a slight traumatism or by some infecting condition which has given rise to inflammation of the organ; most commonly an attack of gonorrhoea. 4. Secondary tubercular involvement of the epididymis or testicle sometimes follows a primary focus of the disease in other portions of the body, more commonly in those organs that are in a direct anatomic connection with the sexual glands, such as the seminal vesicles, the prostate, urethra, bladder, ureter or kidney. 5. The invasion of the testicle may be rapid, associated with acute inflammatory symptoms, an abscess soon developing; or the onset may be slow, the symptoms simulating those of either chronic syphilitic orchitis or malignant disease of the organ. 6. The tuberculin test should always be employed in doubtful cases where only one focus of the disease is known to exist. 7. In doubtful cases associated with hydrocele, the fluid should be examined for the tubercle bacilli and inoculating experiments made. 8. The injections of either emulsions of iodoform or of sulphate of zinc into the diseased part are not to be recommended. 9. In all cases of encapsulated caseous nodules quiescent in the epididymis, epididymectomy should be performed. 10. Epididymectomy, together with resection of the vas deferens, is not attended by either atrophy of the testicle or sexual weakness. 11. The drainage of tubercular abscesses followed by the use of the curette is only to be employed where radical treatment is not permissible as it is attended with more or less danger and is generally unsatisfactory in its results. 12. In instances where the epididymis alone is involved, a resection of the diseased structure is all that is required; whether a partial or complete resection of the vas deferens is to be undertaken is still undecided. 13. Double orchectomy should be performed when both glands are diseased, provided there is not extensive co-existing tubercular infection of other organs. 14. Whether infected seminal vesicles should always be removed at the time that the epididymis or testicle is resected is a question open for discussion. From the fact that in a large majority of cases the removal of the primary seat of the disease is followed by a subsidence of the tubercular involvement of the vesicles, it is deemed wiser, as a rule, to wait and remove the vesicles later if necessary. 15. Hygienic and climatic influence play as important parts after operation in fortifying the constitution against further invasion as they do in other tubercular conditions. 16. The anti-tubercular remedies are of great value in controlling the disease and should be employed in conjunction with whatever surgical procedure may be deemed necessary.

Gangrene of Penis. Teratoma of Testicle.

DR. JAMES B. HAYDEN of New York reported one case of each of these unusual conditions with photographs.

DR. RAMON GUIERAS, New York City, read a paper on "The Surgical Treatment of Chronic Nephritis."

Officers for the Ensuing Year.

The election of officers resulted as follows: President, Dr. Paul Thorndike, Boston; vice-president, Dr. Edwin C. Burnett, St. Louis; secretary and treasurer, Dr. John Vanderpoel, New York City; council, Drs. William T. Belfield, Chicago, and James R. Hayden, New York City. The next place of meeting will be Washington, D. C.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.

Proceedings of the Seventh Annual Meeting, held at the Auditorium Hotel, Chicago, April 10-12, 1902, under the Presidency of Dr. Christian R. Holmes, of Cincinnati, Ohio.

Thiosinamin and Electrolysis in the Treatment of Tubal Obstruction.

DR. J. C. BECK, Chicago, read this, the first paper. His observations in treating fourteen cases led him to conclude that without mechanical treatment the injections of thiosinamin did not materially improve the condition; but, after use in conjunction with electrolysis, a simple bougie could be passed with greater ease and inflation was more free and all the cases treated improved in all respects, as regards hearing, tinnitus aurium, general condition, etc. He also says that before using thiosinamin careful inquiry should be made for possible contra-indications to its use, such as existing chronic tuberculosis, malignant tumors and scars which support the abdominal organs in the abdominal wall, such as are found after laparotomy. The drug may be used with just as good results—though it is not as rapid in its action—by mouth administration as hypodermically.

Value of Electrolysis in the Eustachian Tube.

DR. NORVAL H. PIERCE, Chicago, epitomized the history of electrolysis and presented a brief review of the anatomy of the Eustachian tube, explaining certain points noted in the use of the electrical bougie in the tube which have been otherwise interpreted or understood. He reported 20 cases, in only two of which could any results be ascribed to the electric bougie. These were both cases of subacute disease, with recurrent attacks of defective audition and tinnitus, with diminishing intervals, with soft infiltrated membrano-cartilaginous tube near the isthmus. In both of these the benefit to audition and the subjective symptoms were marked, immediate and lasting, and these results were obtained after the usual method of injection, massage, etc.

He concludes: 1. In sclerotic disease electrolysis is useless. 2. In the great majority of cases of catarrhal disease it has no advantage over other methods of treatment. 3. In a few cases, where there is probably a soft exudate near the isthmus, it may be regarded of value.

President's Address.

DR. CHRISTAIN R. HOLMES, Cincinnati, Ohio, in lieu of the customary stereotyped presidential address, gave an illustrated lecture on the development of the ear from the lowest animal up to man.

Neighboring Parts of the Middle Ear and Their Infection.

DR. OTTO J. STEIN, Chicago, read this paper, the object of the contribution being simply to renew acquaintance with the anatomic surroundings of the middle ear. He reviewed the manner and avenues through which infection reaches the neighboring parts of the middle ear, and the manner in which involvement of such parts takes place. He mentioned two ways: first, by continuity of tissue, and, second, by way of the blood and lymph channels, independent of or associated with but not dependent upon any previous ear trouble, as in cases of syphilis and tuberculosis. Involvement by direct continuity of tissue might take place through carious destruction. This was probably the most frequent means of implication, especially in the adult, and almost always in chronic cases. In the acute forms and in children, this was probably less so. Other means of involvement were numerous. It might take place by way

of numerous emissary and communicating blood channels, or by way of the lymph or nerve channels, etc. In the case of the antrum and mastoid cells, the aëtus furnishes the avenue through which infection travels. Finally, the parotid gland on the lateral wall of the pharynx may become implicated in an infective process from the middle ear, owing to its anatomic relationship to the fissure of Glasseri.

DR. B. ALEXANDER RANDALL, Philadelphia, delivered a lantern lecture, by invitation, in which he pointed out the relation of the facial nerve to the tympanum, especially in tympanic exenteration.

Principles of the Treatment of Otorrhea.

DR. WILLIAM L. BALLENGER, Chicago, read a paper on this subject. The treatment of suppurative processes of the middle ear and mastoid spaces should be based upon three principles: first, the establishment and maintenance of free drainage of pus and secretions; second, the removal of all morbid material, whether it be pus, debris, or sequestra of bone; third, the maintenance of asepsis of all parts. He discussed the treatment of suppuration limited to the middle ear proper, saying that it might be successfully accomplished by simple local treatment through the external meatus. But as to the middle ear attic, and antrum, the narrowness of the aditus materially interferes with the free drainage of the antrum, hence treatment through the external auditory meatus is usually inadequate. In a certain number of cases the removal of the malleus and incus, with the drum-head, affords ample drainage and enables the principles of treatment to be carried out. In cases of suppuration involving the middle ear, attic, antrum and mastoid cells, he said it was often necessary, in addition to other treatment, to resort to the radical mastoid operation in order to eradicate the disease.

DR. M. A. GOLDSTEIN, St. Louis, Mo., discussed the post-operative management of cases of intra-nasal surgery.

The Best Means of Removing Nasal Obstructions.

DR. J. W. MURPHY, of Cincinnati, Ohio, followed with this paper. He finds himself resorting to the cautery less and less each year, since his experience has been that more damage results from repeated cauterizing than follows a clean surgical operation along the under-surface of the bone, where the glands are few and the hypertrophied tissue is most marked. The operation which he has practiced for several years consists in removing the redundant tissue by means of saw and scissors. He always aims to remove a very small portion of the under-edge of the bone. Often this sliver of bone is so small that it is scarcely perceptible, but the success of the operation consists in getting a linear scar along the entire under edge of the turbinate body, since it is by means of this scar that the permanency of the opening is to be maintained, and the blood supply cut off from the underlying connective tissue. During the past ten years he has had occasion to do this operation 263 times on 155 patients, and in about 2 per cent. of his cases there has been a regeneration of tissue at the site of operation. In the removal of the middle turbinate, he finds the scissors devised by Dr. C. R. Holmes admirably adapted for this purpose.

The advantages of operating with the saw and scissors are that the technique is simple, the instruments required are few and inexpensive and no cauterizing outfit is necessary. The parts operated upon are constantly under the eye and direct control of the surgeon and as much or as little tissue as is necessary can be removed. The operation requires but a few moments, is painless, bloodless and, as a rule, the results are permanent. He has operated upon a number of medical men and they have all experienced permanent relief. Indeed, the operation has been so satisfactory, both to himself and patients, that he seldom resorts to any other method.

DR. G. V. I. BROWN, Milwaukee, Wis., discussed "The Dynamics of Nasal Disease in Relation to the Maxilla."

The Fauical Tonsil and Submerged Tonsil.

DR. E. O. SISSON, Keokuk, Iowa, contributed a paper on "The Hypertrophied Fauical Tonsil; with a Report of the Morbid Histology of the So-called Submerged Tonsil." He discussed the various forms of hypertrophy of the faucial ton-

sil and the treatment of the same. The paper included a report on the morbid histology of the so-called "submerged tonsil," first described by Pyncheon, where the originally hypertrophied tonsil has become partially atrophied and largely submerged, the submersion being as much due to pillar hypertrophy as to tonsil atrophy.

A microscopic examination of a large number of specimens of such tonsils furnished the author by Dr. Pyncheon showed a great increase of connective tissue. It formed broad bands throughout the gland, leaving little islands of lymphoid cells scattered through it, and in some cases formed large numbers of well-defined alveoli containing lymphoid cells, causing the specimens to assume the appearance of a scirrhous carcinoma, the lymphoid cells taking the place of the epithelial cells. The blood vessels in the connective tissue were much larger than those seen in the normal condition. The laminated epithelial covering was a good deal thickened. Beneath the epithelium the mucosa was seen to be increased by the extra development of lymphatic cells, some of which in places insinuated themselves between the epithelial cells. The acinous mucus glands naturally present in the tonsil had disappeared in the majority of specimens examined.

In treatment, the following conclusions were given: 1. Only the surgical treatment yields satisfactory results. 2. No one method is applicable to all cases. 3. The danger from hemorrhage is slight and should not deter one from taking operative steps in all cases where they are indicated.

The Misuse of Glasses.

DR. F. C. HOTZ, Chicago, delivered an address on this subject. The careful adjustment of glasses for the accurate correction of errors of refraction has achieved so many brilliant results that refraction work is now a very prominent, if not the most prominent, part of ophthalmic practice. But neither science nor common sense can approve the prescribing of glasses for slight refraction errors in cases where the apparent asthenopia is plainly due to conjunctivitis, blepharitis or other local or general disorders.

Section and Exsection of the Rectus Muscle in Case of Paralysis, for Cosmetic Purposes.

DR. A. E. PRINCE, Springfield, Ill., advocated the division of the muscle or exsection of a greater or less portion of the muscle in cases of paralysis in which an advancement was not indicated. His experience is that all attempts at correcting the deformity of confirmed paralysis of the rectus will be failures unless the muscle is weakened to correspond with the paralyzed muscle.

DR. J. ELLIOT COLBURN, Chicago, read a paper in which he discussed the present state of our knowledge concerning so-called partial or graduated tenotomies and the heterophorias.

DR. DERRICK T. VAIL, Cincinnati, Ohio, reported a case of sympathetic ophthalmia, with complete recovery of both eyes. His principal object was to lay especial stress upon the value of the one great therapeutic agent—total darkness—complete rest for the retina and accommodation, in the treatment of sympathetic ophthalmia and allied affections of the eye.

DR. A. ALT, St. Louis, Mo., followed with a lantern lecture on epithelial intra-ocular tumors.

DR. C. L. MINOR, Springfield, Ohio, discussed "Refraction; Its Difficulties, and How to Overcome Them."

DR. J. O. STILLSON, Indianapolis, Ind., reported cases of bleaching or distinct pallor of the temporal segment of papulo-macular bundle of optic nerve fibers, due to other causes than tobacco and alcohol.

DR. DUDLEY S. REYNOLDS, Louisville, Ky., followed with a paper on "Toxic Amblyopia," selecting for purposes of illustration a case of nearly total blindness, the result of drinking essence of cinnamon; a typical case of autotoxemia, and four cases of tobacco amblyopia in persons who had never taken alcohol.

Is the Dislocation of the Lens into the Vitreous Ever Justifiable?

DR. GEORGE F. SUKER, Chicago, summed up the most salient points of his paper as follows:

1. The percentage of failures in the class of cases in which

depression can be performed is no larger, on the contrary less, than in the same cases operated upon by extraction.

2. Do not depress a lens in cases with choroiditis or retinitis.

3. Consider depression in all cases where one eye has been lost by extraction, and its fellow must be operated upon.

4. Depression of the lens must not be indiscriminately performed, but only in such cases where the contra-indications of extraction outweigh its own objections.

Finally, the writer considers reclinatio of the lens as an exceptional procedure, and can only regard it as unquestionably indicated in such a class of cases as he had alluded to, when the general constitution of the patient, or the previous experience with the fellow eye, unhesitatingly points to a failure if the extraction method were resorted to.

DR. O. A. GRIFFIN, Ann Arbor, Mich, read a paper on "Transient Astigmatism."

Ocular Affections Secondary to Syphilis.

DR. RANDOLPH BRUNSON, Hot Springs, Ark., read a paper on this subject, in which he said that syphilis is probably responsible for a greater number of ocular affections than any one disease known. Secondary syphilitic ulcers may occur on the eyelids from the breaking down of a gumma originating in the skin or in the subcutaneous tissue and cartilage. The most frequent location of the lesion is in the skin near the lid margin or below the inner canthus, although it may occur on the conjunctival surface of the lid. The conjunctiva is very rarely affected primarily, but inflammation usually occurs when the iris and ciliary body are involved the edema observed in these cases being caused by an obstruction of the return-flow of circulation.

The lachrymal sac and duct are frequently invaded by syphilis through the nose. In all the cases of stricture of the lachrymal canal, due to syphilis, which had come under his notice, he had always been able to find the cause in the nose. Syphilitic rhinitis, both acute and chronic, is very common, and when there was great destruction of the nasal bones and membranes, dacryo-cystitis usually occurs, with varying severity. The iris and ciliary body are perhaps more often invaded by syphilis than any one part of the globe, and syphilis is frequently the common predisposing cause of iritis. About 70 per cent. of all cases of iritis are caused by this disease. The author has found in examining the histories of 1500 cases of syphilis, that iritis occurred in over 3 per cent. of all cases.

He mentioned a number of characteristic signs which enable one to recognize the etiology of the disease, the most conspicuous of which are the papules, small raised masses in the iris, usually not exceeding three in number, and generally located in the pupillary zone, but may be seen at the periphery of the anterior chamber, or elsewhere.

Interstitial keratitis had its origin in syphilis, and in perhaps 60 per cent. or more of all cases of this variety of disease of the cornea it is hereditary. He had never seen a case caused by acquired syphilis, and believes the cases reported as such have simply been produced by iridochoroiditis, which has involved the deeper layer of the cornea. Disseminated choroiditis is caused by syphilis in perhaps 80 per cent. of all cases.

Enucleation of Blind Eyes Caused by Traumatism.

DR. C. D. WESCOTT, Chicago, urged this measure.

Ever since his pupillage in ophthalmology he has had a prejudice against hopelessly blind eyes, made so by traumatism, or inflammation of the anterior segment of the globe. The fact that there is a well-known difference of opinion as to what ophthalmologists should do or recommend in such cases is his excuse for speaking on the subject. As an illustration of what may happen in consequence of leaving a blind eye from traumatism, in spite of the fact that the eye is quiet, not shrunken, not painful, not tender, he recounted two or three cases in which sympathetic ophthalmitis destroyed the well eye.

Dr. Wescott's treatment in this and other cases was endorsed, in the discussion, by Drs. Eugene Smith, A. Alt and George F. Suker.

Estimation of Damages in Eye Injuries.

DR. H. V. WUERDEMANN, Milwaukee, Wis., read a paper entitled "Epicritic Remarks upon Methods for Estimating the Economic Damage from Accidental Injuries to the Eyes." Earning ability is economically synonymous with visual earning ability for the majority of trades and professions. Injury to vision generally necessitates loss of earning powers. The economic value of vision is equivalent to the wages of the individual. After injuries involving loss of earning ability, the loss of wages may be reckoned from experience in examining large numbers of individuals, or the probable loss in any given case may be found by reckoning the percentage of damage to the normal function and applying this to the calculation of the probable pecuniary loss. A mathematical formula may be made for this purpose in which the several factors comprising vision should be properly related, and this formula for working vision should be modified by the ability to use the eyes for gainful purposes, the whole forming a formula for the earning ability. By this means a percentage of the loss to the earning ability may be figured and this percentage applied to the probable wages and duration of working life in the individual who has received the accident. Damages to ambition, to hopes and plans can not be considered. We must deal with the station in life, and expectation of wages and life which belongs to the individual at the time of the accident. Compensation for injuries from accidents to the eyes should be based upon the economic damage modified by the present rulings of American courts in allowing an empiric amount for pain, suffering and mental anguish and for philanthropic or punitive purposes, or for contributory negligence; the latter amounts being only of forensic importance. By the rules of Magnus and Würdemann, the economic damage may be calculated in a manner fair and just to all interested parties.

DR. HANAU W. LOEB, St. Louis, Mo., reported a case of rapidly fatal carcinoma of the epipharynx. He went extensively into the literature of carcinoma of the epipharynx, epitomized the histories of 27 cases which he had found and gave the symptomatology.

Pneumatic Massage in Aural Practice.

DR. EDWIN PYNCHON, Chicago, read this paper. Through its favorable effect upon the cause—middle-ear adhesions, etc.—pneumatic massage is often beneficial. It assists greatly in the correction of itching of the external auditory canal and is generally instrumental in increasing the secretion of wax when the canal has become too dry, both conditions being concomitant with chronic catarrhal otitis media. Additionally, in hypertrophic cases, inflation by the Politzer method soon becomes more easy of execution.

With reference to the value of pneumatic massage in acute inflammatory troubles of the middle-ear, authorities differ. Pneumatic massage has proved of value in suppurative conditions of the middle-ear, particularly in cases of long-standing, and when employed in addition to the usual line of treatment will often greatly expedite a cure, owing to its mechanical effect in jarring or drawing down discharges from the attic.

The Significance of Aphonia in Aneurysm of the Arch.

DR. WILLIAM PORTER, St. Louis, Mo., believes that early diagnosis and proper care will increase the life expectancy and comfort of the patient. Pressure on the recurrent nerve does not always produce aphonia. Sometimes there is arytenoid compensation and the crossing of the median line by the one cord, while the other is in the cadaveric position. Unilateral congestion, or loss of symmetry of movement, is always suggestive. The laryngeal evidences of pressure may also be sequences of interference with nerve function by tumors or enlarged glands.

Officers for the Ensuing Year.

These officers were elected: President, Dr. Wm. L. Ballenger, Chicago; first vice-president, Dr. J. O. Stillson, Indianapolis, Ind.; second vice-president, Dr. J. Morrison Ray, Louisville, Ky.; third vice-president, Dr. Edwin Pynchon, Chicago; secretary, Dr. Derrick T. Vail, Cincinnati, Ohio; treasurer, Dr. O. J. Stein, Chicago. Indianapolis, Ind., was selected as the place for holding the next annual meeting.

CHICAGO NEUROLOGICAL SOCIETY AND CHICAGO MEDICAL SOCIETY.

Joint Meeting, held April 2, 1902.

President, Dr. Daniel R. Brower, In the Chair.

Definition and Pathology of Multiple Neuritis.

DR. ARCHIBALD CHURCH spoke on the definition of neuritis, reviewed the etiology and described at some length the pathology.

DR. SYDNEY KUH discussed the "Symptomatology, Diagnosis and Differential Diagnosis of Neuritis."

Treatment of Neuritis, Other Than Surgical.

DR. ELBERT WING read this paper. The objects of treatment are removal of the cause and restoration to normal conditions. Relief of pain is imperative in all acute cases of severity. For this purpose hot cloths properly applied along the course of the nerve often are of great effectiveness. Counter-irritation may answer, but should never be applied in the area of distribution of the affected nerve. In chronic cases the actual cautery is the best counter-irritant. In acute simple cases, sand bags, slings and splints have a useful function. They may promote relief of pain through limitation of motion and prevent and correct deformities. In most severe primary cases morphin is needed for the relief of pain. The coal-tar preparations rarely suffice. If used, the doses must be large, frequently repeated, and acetanilid should never be used for this purpose. Morphin, cocain and other analgesics are most effective when placed, by means of a hypodermic syringe, in the immediate proximity of the affected nerve. Stretching of the nerve, in simple sciatic cases, by forcible flexion of the trunk upon the extended lower extremities, or of the extended extremity upon the trunk, the body supine, is at times remarkably successful, both in relieving pain and promoting recovery. The same is true of efficient massage. The use of the electrostatic currents and the Roentgen ray have a useful future in the relief of pain in probably all cases of neuritis.

In the list of general tonics, the salts of strychnia rank first. As in any other chronic condition, the form of tonic used must be occasionally varied. In the chronic forms of simple neuritis the use of one grain of blue pill, two or three times daily, and for long periods, produces favorable results, not simply chronologic. In polyneuritic cases, massage, skilfully used, the proper use of splints and electricity, together with voluntary exercise of muscles, bring about cures even in the worst cases. As a rule, in alcoholic neuritis, alcohol may be withdrawn at once.

The causes of death in the fatal cases indicate clearly the special care which is needed, cardiac and pulmonary weakness being induced both directly by the special cause in each case and by the auto-intoxication which may arise in any case.

Surgical Treatment.

DR. WELLER VAN HOOK discussed this phase of the subject, saying that surgery is in a position to be of service in the treatment of the consequences of neuritis rather than in the management of the actual disease itself, whether acute or chronic. Surgical means are indicated where pressure upon a nerve is inducing neuritis, especially where fractures primarily or secondarily involve large nerve trunks, or plexuses. Other conditions are compression by periostitis, or tumors of a non-malignant character.

When paralysis is a consequence of neuritis, surgery offers relief in many cases by transplantation of nerves or of tendons. Results obtained by this modern method of treatment are very gratifying. French surgeons, at the head of whom is Chipault, have of late shown much enthusiasm in the management of many cases of peripheral nerve disease, particularly of the trophic varieties, by stretching. It is claimed by Chipault that *mal perforant* of the foot can be favorably influenced in many instances by the stretching of the nerves of the leg. It is particularly in cases where the sciatic has been injured, or where it has been involved in inflammations of the thigh, that nerve stretching has seemed to be of service in *mal perforant*.

Sciatica.

DR. L. HARRISON METTLER referred to sciatica being in some recent text-books still classified under several heads, as, for

instance, primary and secondary. The primary are divided into the idiopathic and the special forms of neuritis. He thought this was a mistake. He could not conceive of a secondary sciatica in the sense of a mere pain of the nerve caused by some extraneural pressure. If there is disease of the bone, tumor or other condition causing secondary disease, either of an inflammatory or degenerative type, in the sciatic nerve, it might seem to be a secondary sciatica, but it is only secondary etiologically. It is really a sciatic neuritis; hence he thought so-called secondary neuralgia, or sciatica as a special class, should be dropped from the books. Almost all the cases he had seen of sciatica exhibited more or less the symptoms of sciatic neuritis. The symptoms which usually accompany so-called ordinary idiopathic neuralgia of the sciatic nerve were those that are characteristic of sciatic neuritis.

As to the treatment in cases of sciatic neuritis, where there was a rheumatic diathesis, he obtained the most favorable results from the use of the salicylates, pushing them until he got a decided physiologic effect. He had not seen such favorable results from the use of mercury or antisyphilitic treatment. Sciatica was not usually caused by syphilis.

Dr. DANIEL R. BROWER had had within three months two cases of neuritis of the fifth nerve, both syphilitic. It was rare in his experience for this nerve to be attacked by the syphilitic poison, but these cases, coming so close together, were interesting as well as instructive.

Dr. C. P. PRUYN said that dentists had a good deal to do with neuralgia of the fifth nerve. He was a little surprised on being told by a prominent neurologist that neuralgia of the fifth nerve was seldom caused by tooth irritation. Frequently the patients consult dentists for relief after they have gone through the gamut of the general treatment by physicians, and tooth irritation is found to be the cause. Often there is calcification of the tooth pulp, sometimes complete, at other times simply a calcified nodule, which caused the whole disturbance. The removal of this nodule effects a cure.

Dr. O. B. WILL, Peoria, believes that in the acute or primary form of neuritis, where the patient was suffering much from neuralgia, the best treatment was the administration of chloroform or ether. He used this altogether in his own case, and his professional friends had adopted it, with good results.

Dr. A. W. BAER had used the salicylates in the rheumatic form of neuritis, with beneficial results, especially if not pushed to the point of interfering with the functions of the stomach. He had never obtained much benefit or relief in these cases from external application, outside of heat and cold, except from the effects of rubbing oil on the parts affected. If the neuritis was of traumatic origin, the interrupted galvanic current was by all odds the best, and he had obtained some excellent results from it. Sparks from the static current in cases of toxic neuritis had given excellent results.

Dr. JULIUS GRINKER said diphtheritic paralysis was nothing but a neuritis following diphtheria infection manifesting itself by motor disturbances principally, the sensory disturbances taking a back ground or perhaps not being noticed. He thought possibly many cases of sudden death after diphtheria were due to vagus involvement, the neuritis having developed and progressed rapidly and involved the vagus, killing the child, the nature of the trouble being unnoticed by the physician. Symptoms should be looked for in every case of diphtheria that has apparently recovered. He urged that the reflexes be tested, as the first symptom noted after diphtheria of oncoming neuritis was absence of reflexes. When the reflexes are diminished or absent, one should look out for neuritis. He narrated a case of paralysis of almost all the ocular muscles occurring after diphtheria in a child whom he cured by giving 1/30 gr. of strychnia, t. i. d.

Dr. G. W. HALL said it was important to remember, in making a diagnosis, that sensory disturbances do not necessarily have to be present. He emphasized the great difference as to the presence and absence of sensory disturbances in the different forms of neuritis, saying that in neuritis following lead poisoning the sensory disturbances were very slight as compared with the motor. In neuritis following alcoholism it was very rare that we did not have sensory disturbances present to a greater or less extent. He believes in many cases

paralysis comes on almost simultaneously with sensory disturbances.

Dr. LISTON H. MONTGOMERY would not care to use such large doses of strychnia as mentioned by Dr. Grinker. Diet was a very important feature in the treatment of many cases of neuritis.

Dr. GRINKER did not consider the thirtieth of a grain of strychnia, administered to a child of eight or twelve years of age, a large dose. He had used it in such doses in several cases, with excellent results.

Dr. I. A. AET believed that strychnia is frequently given to children in too large doses, and related a case. During the infantile period he believes great caution should be exercised in the administration of this drug.

Dr. JAMES W. WALKER mentioned the use of the Paquelin cautery, saying that he had obtained excellent results in the relief of pain, but he could say nothing regarding its effect upon the inflammatory process in acute neuritis. It seemed formidable to the average practitioner to see it used. The lightest possible touch was all that was necessary. It could be used once daily, or once every other day, two or three strokes being made in the vicinity of the painful joint or nerve.

Dr. THOMAS L. GILMER said he had been a sufferer from neuritis, especially of the sciatic form. Dr. McArthur's prescription for local application did him more good than any one thing he had used for a number of years. This prescription is: Menthol, 8 grams; oil of gaultheria, 30 grams; creosote, 2 grams.

Dr. KUH, in closing the discussion, agreed with Dr. Montgomery that rheumatism and a number of other causes might produce neuritis, Bright's disease among others. With reference to the patient of Dr. Grinker, if there was paresis of the lower extremities, associated with total paralysis of the movements of the eyeballs, Dr. Kuh thought the patient probably did not suffer from a diphtheritic neuritis. Total paralysis of all of the extrinsic muscles of the eyeballs could hardly occur in neuritis.

MEDICAL SOCIETY OF CALIFORNIA.

Thirty-second Annual Meeting, held in San Francisco, April 15-18, 1902.

President's Address.

At the opening session, the chairman of the committee on arrangements welcomed the members to San Francisco, after which Dr. William J. G. Dawson, St. Helena, president of the society, presented his annual address, reviewing the progress of medical science during the past year. He spoke of the usefulness of state societies and their work, and referred to the new plans of the American Medical Association. In closing he paid a tribute to the members who had died during the last year. Dr. Curtis G. Kenyon, chairman of the committee on revision of constitution and by-laws, made an extended report.

Hydrotherapy.

At the afternoon session, Dr. George A. Hare, Fresno, read a paper on "Hydrotherapy," and gave a short history of the development of this method, a report of some original experimental work and briefly discussed the physiologic bearings of the subject. He said that in no other branch of medical research had there been so many valuable and beneficial results. The use of heat and cold, simple in themselves, had become a scientific principle in increasing and diminishing blood supply, and he thought that hydrotherapy might well displace venesection. Dr. Frank L. Adams, of Oakland, then read a paper in which he discussed "Hydrotherapy in Typhoid Fever," giving statistics from 1786, when the first successful use of the method was made, up to the present time. The statistics of hospital and private physicians, he said, showed a mortality of from 4 to 7.5 per cent. under hydrotherapy, while, under other forms of treatment, the mortality was as high as from 14 to 26 per cent.

Hindrances to Care of Insane.

Dr. ALDEN M. GARDNER, Belmont, read a paper on the "State Hospital Care and Treatment of Acute and Convalescing Insane," in which he stated that the staffs of physicians in state

hospitals could not accomplish the best results under the existing circumstances of political influence and false economy. At the evening session papers on special topics of ophthalmology, laryngology, rhinology and otology were presented.

The morning session of April 16 was devoted to papers on obstetrics, puerperal diseases and pediatrics; the afternoon session to gynecologic papers.

Bone Grafting; Angiotribe; Appendicitis.

At the evening session surgery and surgical anatomy were the subjects discussed. Among the papers of interest read in this section were one by Dr. Morton, of the City and County Hospital, on "Bone Grafting," and one by J. Henry Barbat, San Francisco, on "Appendicitis." The latter showed the difficulties that sometimes confuse the diagnostician, reported several cases and contended for immediate operation. This paper, of course, provoked a lively discussion. Dr. Oscar J. Mayer, San Francisco, then read a paper on "The Use of the Angiotribe as Replacing the Ligature in the Routine Work of General Surgery," with an exhibition of his modification of the angiotribe.

Revision of the Constitution.

At the morning session on April 17, various papers were read. The special committee on the revision of the constitution and by-laws made its final report, which proposed for the association the plan adopted by the American Medical Association. This was approved.

The report of the committee on medical education, submitted by the chairman, Dr. William F. McNutt, San Francisco, called forth a spirited discussion in which charges against a local medical college were vigorously made and the college as vigorously defended by its friends.

DR. GEORGE A. HARE, Fresno, introduced a resolution declaring it the sense of the society that a man, to receive a medical license in California, should have had a good preliminary academic education, but inasmuch as the new law of the state contains this provision, the resolution was not pressed.

The afternoon session was largely devoted to routine business, reports of boards, officers, etc. The following resolutions condemning the action of the mayor of San Francisco in removing the local board of health, and expressing confidence in the board of health recently removed were passed:

WHEREAS, The mayor of the city of San Francisco has seen fit to remove the so-called old board of health, and

WHEREAS, The chief executive of the city has stated that he has determined after a prolonged personal investigation that bubonic plague has never existed in San Francisco, and

WHEREAS, The position is absolutely unsupported by any competent, unprejudiced physician who has made personal examination of suspects or alleged cases of plague before or after death, or who has examined the bacteriologic evidence presented, and is further in direct conflict with the findings of the Federal Government experts and special commission, therefore, be it

Resolved, That the Medical Society of the State of California emphatically condemn this action on the part of the mayor of San Francisco and at the same time endorse the position always maintained by the old board of health in its sanitary defense of the people of the city of San Francisco and of the country at large.

Resolutions were also adopted in favor of the general vaccination law and of the establishment of a vaccine farm.

The election of officers began with tabling the report of the nominating committee, and a spirited election followed, with the following result: President, Dr. Frank B. Carpenter, San Francisco; vice-presidents, Drs. Charles C. Wadsworth, and David A. Hodghead, both of San Francisco; secretary, Dr. George H. Evans, San Francisco; assisting secretaries, Drs. Z. Taylor Malaby and E. M. Bixby, San Francisco; treasurer, Dr. Elmer E. Kelly, San Francisco; board of examiners, Drs. Dudley Tait, San Francisco, David Powell, Marysville, Daniel E. Osborne, St. Helena, Walter S. Thorne, San Francisco, and R. L. Wilbur, San Francisco; board of trustees, Drs. Charles W. Nutting, Etna Mills, Thomas Ross, Sacramento, Frank L. Adams, Oakland, Philip M. Jones, San Francisco, Andrew W. Morton, San Francisco, George L. Cole, Los Angeles, George A. Hare, Fresno, W. S. Fowler, Bakersfield, Curtis G. Kenyon, San Francisco, Julius Rosenstirn, San Francisco, and W. LeMoyne Wills, Los Angeles.

Santa Barbara was selected as the meeting place for 1903.

The association was tendered a banquet by the San Francisco County Medical Society, at which about two hundred were present, Dr. John C. Spencer acting as toastmaster.

MEDICAL ASSOCIATION OF ALABAMA.

Annual Meeting, held in Birmingham, April 15-18, 1902.

First Session, April 15.

DR. CUNNINGHAM WILSON, on behalf of the Jefferson County Medical Society and the local physicians, welcomed the visitors to Birmingham. Hon. E. L. Dickey extended a welcome on behalf of the mayor, W. W. Drennen, who was obliged to be absent.

The President, DR. EDWIN L. MARECHAL, Mobile, in his address, gave a brief history of the association. It was organized in 1849 and held annual sessions until 1856, when it ceased to exist until after the Civil war. In 1868, the association was reorganized at Selma. Of those present on that occasion only three are living, namely, Drs. Richard F. Marechal and Jacob Huggins of Alabama, and Dr. T. C. Osborne of Texas. The address concluded with recommendations for the future of the association.

Organization.

DR. JAMES N. McCORMACK, secretary of the State Board of Health of Kentucky, and chairman of the Committee on Reorganization of the American Medical Association, was then introduced by the state health officer, Dr. William H. Sanders. The reports of the officers for the previous year were presented.

At the evening session, Hon. J. B. Duke, Lafayette, read a paper on "The Relations of the Medical and Legal Professions" and Dr. Glenn Andrews, Montgomery, a paper on "The Prevention and Spread of Infectious Diseases."

Sleep—The Annual Oration.

The morning and afternoon sessions of April 16 were devoted to the discussion of papers and in the evening the historian's address was presented by Dr. Samuel W. Welch, Alpine. Dr. J. Huggins, Newberne, then made his report as monitor, and the annual oration by Dr. Edwin B. Ward, Selma, followed. The author discussed sleep, its causes, remote and direct, the reason for sleep and the best conformation of habits to obtain normal sleep. These include exercise in the open air to the point of fatigue, avoidance of heavy and late meals and avoidance of severe mental strain before retiring. He impressed on the audience the danger of the habit of taking drugs to produce sleep, as artificial sleep does not satisfy the body. As the phenomena of sleep point to the readjustment of energies, the habits of life should be so conformed as to secure the necessary amount of normal healthy sleep.

Incurable Conditions Relieved by Surgery.

One of the most interesting papers of April 17 was by Dr. James T. Jelks of Hot Springs, on "Incurable Conditions Amenable to Surgery; Three Operations Followed by Relief of Cirrhosis of the Liver, Hypertrophy of the Prostate and Bright's Disease." Dr. Jelks asserted that Bright's disease was no longer incurable; many cases have been cured through surgical interference. He specially mentioned the work of Mr. Reginald Harrison of London, and the brilliant results of the New York surgeons.

Failures in Treatment of Morphin Habit.

DR. GEORGE E. PETEY, Memphis, Tenn., presented a paper in which he gave some reasons for failures in the treatment of the morphin habit. He asserted that the direct cause of the failure of cures in the past was that the mind was not treated, as well as the body. The three methods formerly in universal employment were the sudden withdrawal, the rapid withdrawal and the gradual withdrawal of morphin from patients. He pointed out that in all three of these methods the patient had been left without the habit, but that the mental condition was not treated; he averred that if the mental cure were carried on at the same time the patient would be left strong, not only in body, but also in mind. This paper elicited an animated discussion.

Milk and Infant Mortality.

During the discussion of the paper of Dr. Thomas D. Park on the "Causation of Infantile Mortality in the State," Dr. John C. LeGrand, Birmingham, said that many dairies tended to enlarge the mortality by furnishing impure or polluted milk for infant food. He urged that stringent laws be passed

whereby dairymen could be more carefully watched, and spoke of the general failure of mothers to sterilize milk before feeding to infants. He then narrated his personal observations on the fatal results following the use of polluted milk as infant food.

General Business Session.

The greater part of the session of April 18 was devoted to the reports of the censors, counsellors, correspondents and other officers and revision of the rolls of the county societies. The report of the committee on the Jerome Cochrane monument was also received, which stated that the committee was now ready to receive contributions and asked the active cooperation of all members. Reference was made in the report of the senior censor to a bill now pending before Congress which seeks to change the Marine-Hospital Service. The censor objected to this, but the association decided to refer the matter back to the censors until next meeting. The other recommendations of the senior censor in reference to state laws were adopted.

Election of Officers.

The election of officers resulted as follows: President, Dr. Glenn Andrews, Montgomery; vice-president, northern division, Dr. Andrew McA. Stovall, Jasper; orator, Dr. Lewis C. Morris, Birmingham; alternate orator, Dr. George S. Brown, Birmingham; and members of the board of censors, William H. Sanders and Dr. Henry A. Moody, Bailey Springs. Dr. Glenn Andrews, Montgomery, president-elect, resigned as member of the board of censors and William E. B. Davis, Birmingham, was elected to fill the vacancy.

The association adjourned to meet at Talladega next year.

Entertainment.

The entertainment provided by the local physicians consisted in a reception by members of the Jefferson County Medical Society at the Hillman Hotel, a luncheon by the local medical society at the Country Club, and a buffet luncheon given by Dr. George Brown.

UNIVERSITY OF CHICAGO MEDICAL CLUB AND RUSH MEDICAL SOCIETY.

Joint Meeting, held April 7, 1902.

Dr. Donaldson in the Chair.

DR. GEORGE SHAMBAUGH read a paper on "Bone Cyst of the Middle Turbinate Body," of which the following is an abstract:

A cyst lined with epithelium and having thin bony walls is occasionally found in the anterior end of the concha media. Such cysts are, as a rule, empty, air-containing cavities, but are occasionally found to be the seat of a mucocele or an empyema.

The cyst represents a greatly enlarged ethmoid cell. The concha media is a part of the ethmoid bone. It represents the median extension of one of the partition-plates of the ethmoid labyrinth, analogous to the unciform process and the bulla ethmoidalis. The bulla is usually the seat of an ethmoid cell and occasionally such a cell is found in the unciform process. In a similar way the base of the concha media is not infrequently the seat of an ethmoid cell. It is the excessive enlargement of such a cell that produces the bone cyst of the concha media or concha bullosa.

The enlargement may, in some cases, be the result of supuration in the cell, the outlet of which has become closed, but, as a rule, such cysts are not associated with any inflammatory discharge, while the opening is usually very large and not easily closed by inflammatory swelling. The enlargement, in most cases, is probably not the result of an inflammation, but represents an anatomic variation, the result of a developmental anomaly. Such variations are common among the other cells of the ethmoid labyrinth, sometimes only two very large cells filling the entire labyrinth; at other times the space being occupied by a great many small cells.

Dr. DAVENPORT read a paper on "A Quantitative Study of Variation in Scallops." This paper was read earlier before the American Morphological Society of Chicago and was reported with the report of that organization in *Science*, April 5, 1902.

Both papers were discussed by Dr. Donaldson and Dr. Barker.

FLORIDA MEDICAL ASSOCIATION.

Twenty-ninth Annual Meeting, held in Tampa, April 9-11, 1902.

Opening Session.

Dr. George H. Altree, Port Tampa City, called the meeting to order and Mayor F. L. Wing delivered the address of welcome, to which response was made by Dr. J. Harrison Hodges, Gainesville.

The president's address was read to the assembly by Dr. J. D. Fernandez, Jacksonville, in the absence of Dr. A. Judson Wakefield, Jacksonville. The remainder of the session was taken up by the reports of committees and of the county medical societies. A reception was tendered the visiting members by Dr. Louis A. Bize, Tampa.

Charges Against Dr. Porter Unfounded.

The charges preferred against Dr. Joseph Y. Porter, Key West, by the Hillsboro Medical Society, that he had quarantined against Tampa for yellow fever, and that on a similar occasion he had not quarantined another place, but had concealed a case, had been referred to a committee, which reported that the matter had been thoroughly investigated and found to be absolutely without foundation. The report was adopted by the association.

Annual Banquet.

The annual banquet was held at the Café Poleca, at which Dr. Edward N. Liell, Jacksonville, delivered an address on the "Progress of Medicine in Florida," and Dr. J. D. Fernandez, Jacksonville, responded to the toast "The Florida Medical Association."

Officers Elected.

The election of officers resulted as follows: President, Dr. J. Harris Pierpont, Pensacola; vice-presidents, Drs. Edward N. Liell, Jacksonville, and John MacDiarmid, De Land.

St. Augustine, April 8, 1903, will be the place and date of the next session.

MISSISSIPPI STATE MEDICAL ASSOCIATION.

Thirty-fifth Annual Meeting, held at Jackson, April 16, 1902.

The President, Dr. James M. Buchanan, Meridian, in the Chair.

Opening Session.

The association was welcomed to the city by the Hon. J. B. Sterling and response was made for the association by Dr. Julius Crisler, Jr., Jackson. After the usual reports of the committees, a resolution was adopted appointing a committee to look into the advisability of reorganization of the state and county societies on the lines suggested by the American Medical Association. The following committee was accordingly appointed: Drs. Joel C. Hall, Frank Jones, William Payne, J. Augustus Crisler, and H. L. Sutherland.

Hygiene and Sanitation.

DR. WILLIAM M. KRAUSS, Memphis, Tenn., then read a paper on "X-Rays in Medicine and Surgery." Dr. Hyman M. Folkes, Biloxi, made a report of "Infant Mortality, Its Cause and Prevention." Dr. Harris A. Gant, Jackson, president of the State Board of Health, presented a paper on "Hygiene and Sanitation." He made a number of valuable suggestions, among which were isolation in tuberculous disease; the establishment of a state tuberculosis sanatorium on the cottage plan for the poor; restrictions of spreading of disease by proper hygienic precautions, among which he mentions the disinfection of telephone receivers, and the aseptic management of infectious fevers and pneumonia. In conclusion he stated that Mississippi was in need of thorough sanitary overhauling and urged the physicians and public generally to unite in the attainment of this object.

Department of Public Health.

The second day's session resolved itself into a meeting of the Department of Public Health, of which Dr. Carroll Kendrick, Kendrick, was made president, and Dr. K. P. Perkins, Batesville, secretary. A resolution was passed favoring a bill for the collection of vital and mortuary statistics and the appoint-

ment of a physician from each county society to co-operate with the county health officer.

The regular work of the association was then resumed and a number of interesting papers read and discussed.

Insanity and Care of Insane.

The president, in his annual address, spoke of the care of the insane and showed the evolution of the present method of treating insanity, and the growth of all rational theories from that of demoniacal possession to the theory that all insanity is the result of physical derangement, which may in many cases be discovered and successfully treated. As much can be accomplished through moral agencies as by medicines, and to this end patients in state hospitals for the insane should have as much home-like environment as possible. The asylum should be placed on a purely medical basis. Superintendents should have secretaries to relieve them of much of the excessive non-medical work. The assistant physicians should be progressive men and should devote their time to study of the patients and to pathologic work. The internes should record cases, copy notes, etc., and at least one physician should devote his time to original investigation. He further urges the establishment of training schools for nurses of the insane.

Election of Officers.

The association adjourned after electing the following officers: Dr. H. L. Sutherland, Rosedale, president; Drs. J. H. Roby and Joseph T. B. Berry, Brandon, vice-presidents; Dr. Clifford H. Trotter, Northfield, secretary; Dr. Benjamin L. Culley, Jackson, assistant secretary; Dr. David S. Humphreys, Greenwood, corresponding secretary; Dr. John F. Hunter, Jackson, treasurer; Drs. W. M. Paine, Aberdeen, K. P. Perkins, Batesville, W. H. Scudder, Mayersville, Charles D. Mitchell, Pontotuc, John R. Tackett, Meridian, Hyman M. Folkes, Biloxi, and Louis D. Dickerson, McComb City, members of executive committee; Dr. Joel C. Hall, Anguilla, delegate to the American Medical Association, and Dr. W. M. Paine, Aberdeen, alternate. Greenville was selected as the place of next meeting.

OMAHA (NEB.) MEDICAL SOCIETY.

Regular Meeting, held April 8, 1902.

President, Dr. F. E. Coulter, in the Chair.

Floating Kidney.

DR. A. F. JONAS, in presenting this subject, said that the furor for fixation of the kidney was now as great as had been that for the removal of various organs. He said that the normal kidney floats and gave a résumé of the anatomy, illustrating it with colored diagrams. No kidney is fixed, every one is movable. It is purely arbitrary to say when this movement is abnormal, because there is no standard of normality. The abdominal organs act as a source of support to the kidney; when the liver and the stomach are displaced there is ptosis of all the abdominal organs, often including the kidney.

Dr. Jonas exhibited a very unusual specimen, a sacculated and tubercular kidney with five divisions. It was found in the pelvis and was about nine inches long and weighed about four pounds. The patient suffered no pain. Dr. Jonas then gave a résumé of the etiology and symptomatology of floating kidney.

He emphasized the fact that nephropexy will not furnish relief to those cases in which there is general splanchnoptosis. One must be very cautious in promising relief to such cases. The low abdominal bandage alone will afford the greatest amount of relief in these cases. All bandages designed to keep in place a floating kidney fail in their purpose. In operative procedures, the suggestion of Edebohls that the decortication should be extensive and that the lumbar muscles should be split, not cut, and the sutures passed through the capsule and the muscles, and the muscles then brought together has seemed to him of the greatest possible value. He now brings the decorticated part close up to the fascia of the quadratus lumborum muscle and there firmly attaches it. Another improvement of equal value is the actual delivery of the kidney through the lumbar incision in every case where it is possible, and it is possible in all cases

except those few in which the renal vessels are abnormally short. The diagram of a bipolar kidney furnished the best possible illustration of the wisdom of delivery of the kidney in all cases where possible. In his first operation upon this case, he had brought the kidney up to the incision, but not out of it, had inspected the presenting surface which seemed to be entirely normal and finished the operation. The patient returned in a short time with all conditions as bad as ever. He again operated, this time delivering the kidney and finding it of the bipolar variety, which explained his failure. He decorticated both poles of the kidney and sutured them firmly with most happy results.

MEDICAL ASSOCIATION OF GEORGIA.

Fifty-third Annual Session, held in Savannah, April 16-18, 1902.

General Business Sessions.

The addresses of welcome were made by Hon. S. B. Adams and Hon. Walter G. Charlton, Dr. Virgil L. Hardon, Atlanta, responding for the visiting members. The rest of the morning session was devoted to the reports of committees and the reading of papers. In the evening a smoker was given to the delegates at the Savannah Yacht Club.

The second day's session consisted of the reports of the secretary and treasurer and various papers, notable among which were those by Dr. Ludwig Amster, Atlanta, "On Medical Aspects of Life Insurance"; by Drs. Theodore E. Oertel and Eugene E. Murphey, Augusta, on "A Case of Diabetes Mellitus, with Autopsy"; by Dr. Elmore C. Thrash, Oakland, on "Reasons Why We Should Have a State Board of Health"; and by Dr. William P. Williams, Blackshear, on "Preventive Medicine."

The report of the committee on necrology paid fitting tributes to eleven active and honorary members of the society, who had died since the last annual convention.

The chairman of the committee on new members, Dr. Willis F. West Moreland, Atlanta, reported that since the establishment of this committee four years before, the membership had increased from 125 to more than 700.

Election of Officers.

The election of officers resulted as follows: President, Dr. Charles Hicks, Dublin; vice-presidents, Drs. Joseph A. Guinn, Conyers and Willet W. Binion, Benevolence; Dr. Alpheus B. Simmons, Savannah, was elected a member of the board of censors, and Drs. Floyd W. McRae, Atlanta, and James B. Morgan, Augusta, were elected delegates to the American Medical Association. Columbus was unanimously accepted as the next place of meeting, for April 16, 1903.

In the afternoon the members enjoyed an oyster roast at Tybee Island.

Therapeutics.

Glycero-Phosphates.

Glycerino-phosphoric acid, according to A. C. Prentice, in *Med. Rev. of Reviews*, is chemically the glycerin ester of phosphoric acid. The neutral salts are most frequently used, are directly assimilable and have a remarkable effect upon nutrition, since the acid represents, chemically, exactly that form in which phosphorus is taken up into the human system. The following is the physiologic action: 1. It accelerates chiefly the nitrogenous exchanges and favors the assimilation of albuminoid substances, increasing the excretion of nitrogen. 2. It does not greatly influence the formation of uric acid, but the increase in the nitrogenous elimination often lowers the proportion of uric acid to urea. 3. It acts on the sulphur metabolism, increasing the oxidation of the broken-up sulphur products. 4. It has no marked effect on intestinal fermentations. 5. It increases elimination of sodium chlorid and hence this corresponds with the clinical fact of improved appetite. 6. It favors the assimilation of the phosphates in the food by the nervous system, exerting an economic action by saving up

combined sulphur. 7. It increases the change of osseous substance without materially influencing that of phosphorus. He recommends it in the treatment of rachitis, phosphaturia, gout, anemia, chlorosis and in general functional and asthenic states of the nervous system. In the anemias, the iron preparation of the glyco-phosphato acts pre-eminently as a blood builder.

Dysentery Treated with Peroxid of Hydrogen.

Rocaz, as noted in *Med. Rev. of Reviews*, states that he has derived great benefit from the use of this agent in treatment of dysentery in ten cases ranging in age from two to twelve years. Lavage of the rectum with the hydrogen peroxid was practiced two or three times a day; the effect was speedy and marked. Within two or three days the character of the stools was materially changed; blood and mucus disappeared, the stools became less frequent and the sphincter regained its tonicity. It is necessary to continue medication some days after subsidence of the symptoms.

Gastropathies of Cardiac Origin.

Cardiac lesions are often complicated by gastric troubles of more or less gravity, which, as stated by Vallentin in *Med. Rev. of Reviews*, appear in about 20 per cent. of the cases. According to his statement these disturbances appear in order of frequency in mitral, aortic, myocarditic and pericarditic lesions. In the majority of these cases the symptoms are anorexia, obstinate vomiting and sometimes hematemesis; which in turn may aggravate a heart lesion. A milk diet, under such circumstances, should be resorted to and the following bitter stomachic and tonic administered:

R. Tinct. nucis vom.	3i	4
Tinct. gentiane	3ii	8
Tinct. rhei co.		
Aq. laurocerasi, āā	3v	20
Aq. menth. pip. q. s. ad.	3iii	90

M. Sig.: One teaspoonful in weak tea before eating. During the gastralgic attack the following preparation is of benefit:

R. Cocainæ hydrochlor.	gr. viii	50
Aq. aurantii	3i	30
Aq. chloroformi	3iiss	75
Aq. destil.	3iiss	45

M. Sig.: One to three teaspoonfuls in soup at the beginning of the attack.

Pain Previous to Menstruation.

The *New York Med. Jour.* recommends the following in treatment of premenstrual pain:

R. Codeinæ	gr. ¾	05
Chloral hyd.		
Ammon. brom., āā	gr. xii	75
Aq. camphoratæ	3i	30

M. Sig.: To be taken at one dose at bedtime.

Eczema.

R. Cocainæ hydrochlor.	gr. iii	20
Atropinæ sulphatis	gr. i	06
Morph. sulphatis	gr. ii	12
Ung. acidi carbol.	3i	30

M. Sig.: Apply locally once or twice a day; or:

R. Bismuthi subnit.	3iv	15
Zinci oxidii	3i	30
Acidi carbol. liq.	m. xxx	2
Vaselini albi	3ii	60

M. Sig.: Apply locally night and morning.

Dandruff.

The following has been recommended in treatment of dandruff, first cleansing the scalp thoroughly with tar soap and carefully drying the hair:

R. Sulphuris precip.	3iiss	6
Lanolini	3i	4
Adipis benzoatis q. s. ad.	3i	30

M. Sig.: Apply thoroughly to the scalp by rubbing in well. The same procedure may be repeated every four or five days.

Pneumonia.

E. D. Chesebro, as stated in *Ther. Monthly*, emphasizes the following points in the management of pneumonia: 1. Carefully regulate the diet, guard against constipation and insist on the

liberal use of pure water. 2. Early in the course of the disease, employ counter-irritants, particularly in the bronchopneumonia of children. 3. Relieve distressing cough by inhalations and, if necessary, by the use of opium or its derivatives. 4. Relieve pleuritic pain by the intermittent use of hot or ice poultices or by the subcutaneous use of morphin. 5. Reduce temperature, if necessary, by bathing. 6. Stimulate the heart with strychnia and, in selected cases, with alcohol, digitalis and normal salt solution. It is possible that venesection, which may be followed immediately by the injection of normal salt solution, is indicated in certain cases of engorged heart and if boldly done may be the instrument in saving life. 7. Employ large and frequently repeated doses of antipneumococcus serum in desperate cases, particularly in those with a tendency to extension of the inflammatory process.

Scabies.

The following is Herxheimer's treatment of scabies:

R. Birch tar		
Sulphuris precip., āā	3iiss	10
Tinct. saponis viridis		
Vaselini, āā	3v	20

M. Ft. unguentum. Sig.: Apply locally, covering the affected region once a day for three or four days following the last application by a warm bath; or:

R. Balsami Peruviana		
Liq. storacis, āā	3iv	15

M. Sig.: Apply once daily for three days and then remove with alcohol. Either method is said to be destructive to the acarus.

Synovitis.

The following is recommended in treatment of synovitis, from any cause:

R. Chloral hydratis	3iv	15
Acidi carbolici	3ss	2
Aquæ q. s. ad.	Oi	480

M. Sig.: Apply, as hot as possible, upon layers of lint, changed every hour and covered with oil silk.

Preventive Treatment in Diphtheritic and Scarlatinal Angina.

L. Kürt, in *Ther. Monthly*, states that he endeavors to stimulate the salivary glands by means of sugar, candy or fruits. By these means he has attained remarkable results. The hypersecreted saliva is swallowed and is thus brought in contact with the pharynx. He recommends even awakening the patient at night every half hour to give a piece of sugar in order to stimulate the salivary secretion. He states, by this method, a beginning angina can be successfully combated and, even in pronounced cases, marked improvement will become manifest within two or three days. In those cases, thirty in all, in which this method has been employed by him, recovery followed within a week. Laryngeal complications were never observed, and in diphtheria, antitoxin was not used in conjunction with the foregoing treatment.

As to the diet in scarlet fever N. S. Davis, in "The Sys. of Phys. Ther.," recommends, during the few days of fever, cool drinks—water, lemonade and seltzer in large quantities. The food must be liquid. Milk is the best, which can be varied by gruels, oranges, baked apples and stewed prunes. If the throat is in such a condition as to prevent swallowing, rectal alimentation must be employed. Care should be taken that enough fluid be administered per rectum to maintain good elimination by the kidneys.

Ice cream can often be swallowed with comfort when fluids give pain. As nephritis occurs more frequently in scarlet fever than in any other eruptive disease, such a diet should be prescribed as will avert it. It is said by Jacoud that scarlatinal nephritis can always be avoided by a rigorous milk diet if persevered in until after the third week. The smallest possible amount of albuminous and nitrogenous diet should be given in order to relieve the kidneys of all the work possible. After the third week, a greater variety of nourishment may be given, such as fish, creamed codfish, oysters or clam broth, squab and breast of chicken. In case acute inflammation of

the kidneys develops, the regimen must be that of nephritis rather than of scarlet fever.

Medicolegal.

State Board of Health and Compulsory Vaccination.—The principal question before the Supreme Court of Kansas, in the case of *Osborn vs. Russell*, was whether the authority granted to the State Board of Health by Section 4 of Chapter 129 of the Laws of Kansas of 1885 vested in the board power to make a regulation that "no person until after being successfully vaccinated shall be admitted into public or private schools." That act provided that "the State Board of Health shall supervise the health interests of the people of the state," and "the State Board of Health shall adopt and publish such rules and order of business as may be necessary to make this act effective." By recent legislation the powers of the State Board of Health have been greatly extended, and the court does not intend anything said in this case as an intimation with reference to the present scope of such powers. But what it holds in this case is that, under the provisions quoted, the State Board of Health had no power or authority to adopt such a regulation, and that its order did not invest a board of education with the authority to deny admission to the public schools of unvaccinated pupils. The court says that the question was not before it, but that it is assumed that the legislature has authority to enact such laws as are requisite for the preservation of health, and to prevent infection from contagious diseases, and it may well be that such power can be delegated. The courts have usually sustained specific regulations intended to prevent the further extension of an epidemic, or to prevent the same when danger thereof appears imminent, and authority given to cities to establish quarantine in such cases has been uniformly upheld. Lastly, the statute requiring the maintenance of a system of free common schools in each city of the second class in the state, "which shall be free to all children residing in such city between the ages" specified therein, the court holds that, in the absence of a lawful regulation prescribed or authorized by the legislature, a board of education of a city of the second class has no authority, at a time when the disease of smallpox does not exist in or near such city, to deny a child of school age, resident therein, admission into the public schools because such child has not been vaccinated.

Limiting Privilege to Physicians of State.—Section 3649 of the General Statutes of Colorado provides: "A physician or surgeon duly authorized to practice his profession under the laws of this state, shall not without the consent of his patient be examined as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient." The question was raised, in *Head Camp, Pacific Jurisdiction, Woodmen of the World vs. Loeher*, as to the effect to be given the words, "duly authorized to practice his profession under the laws of this state." It was urged that the words should not be construed in the sense of limiting or restricting the class to which the statutory privilege applied, but rather in accord with what it was contended was the policy and intent of the enactment as expressed in the preamble, which recites that "there are particular relations in which it is the policy of the law to encourage confidence, and to preserve it inviolate," etc. In other words, it was insisted that the words in question should be entirely eliminated from the statute, thereby making it apply to all physicians, authorized or unauthorized to practice, licensed or unlicensed. But the Court of Appeals of Colorado does not see how, under any authority or rule of construction, a court would be permitted to pursue that course in this case, where it was conceded that the witness, a physician resident in New Jersey, was not authorized to practice his profession under the laws of Colorado. It says that the provisions of the statute as it now reads are clear, intelligible, and easily understood, can not be said to be in any sense unreasonable or absurd, are subversive of no legal private rights, and are not inconsistent with themselves or with any other law. Under such circumstances, however fully the court

might agree with counsel that they should be extended and broadened, the courts are without power in that regard. The remedy is with the legislature alone. That no state has a similar law—one containing the restrictive words under consideration—the court says, is not an argument that they were improvidently used, and that the courts of Colorado should disregard them. Rather, if the fact has any bearing upon the question at all, it would tend to support the contention that they were inserted advisedly, and for a specific purpose. The statute was enacted in 1883. This was the legislative session immediately succeeding the one (1881) in which the legislature first adopted the law providing regulations for the practice of medicine in Colorado, and prohibiting it without a party having been first authorized under its provisions. It may well be that the legislature placed these words in the later statute with the deliberate purpose of carrying out and aiding the policy which it had adopted in the prior one. Wherefore the court holds that the physician referred to was not rendered incompetent to testify as a witness because of this statute.

Skill Required in Specialist—Inadmissible Evidence.—The Appellate Court of Indiana says, in the malpractice case of *Baker vs. Hancock*, that the measure of the duty of a general practitioner is that he does not undertake absolutely to cure, but is bound to possess and exercise the average degree of skill possessed and exercised by members of the profession practicing in similar localities, and having regard to the advanced state of the profession at the time of treatment. A specialist, as the term was here used, is understood to mean a physician or surgeon who applies himself to the study and practice of some particular branch of his profession. Scientific investigation and research have been extended and prosecuted so persistently and learnedly that the person affected by many forms of disease is of necessity compelled to seek the aid of a specialist, in order to secure the results thereof. The local doctor, in many instances, himself suggests and selects the specialist whose learning and industry have given him a knowledge in the particular line which the general practitioner, in rural communities especially, has neither time nor opportunity to acquire. Being employed because of his peculiar learning and skill in the specialty practiced by him, it follows that his duty to the patient can not be measured by the average skill of general practitioners. If he possessed no greater skill in the line of his specialty than the average physician, there would be no reason for his employment; possessing such additional skill, it becomes his duty to give his patient the benefit of it. So the court holds that the party sued, if he held himself out as a specialist in the treatment of cancer, was bound to bring to the discharge of his duty to patients employing him as a specialist that degree of skill and knowledge which is ordinarily possessed by physicians who devote special attention and study to the disease, its diagnosis and treatment, having regard to the present state of scientific knowledge. This was the degree of skill which, by holding himself out as a specialist, he represented himself to have; and, the court adds, it did not lie with him to assert, after securing employment and compensation on that basis, that his representation was not true. The main fact upon which liability was made to depend in this case being whether or not the party sued negligently failed to diagnose the disease, and so failing negligently made a local application, because of which the nose of the party suing was eaten off, the court holds that the latter could not introduce witnesses to prove that the party sued had pronounced certain ailments of their cancers, and sought to treat, and in one case did treat, them for such disease, while the sores, so diagnosed as cancers, got well by the application of simple remedies. There being no connection between the offered proof and the diagnosis and treatment given the party suing, the court holds that it was, therefore, collateral and inadmissible. Likewise, it holds inadmissible evidence introduced by the party sued, relating to his treatment of various other persons, and entirely disconnected from the treatment of the party suing. It says that it could make no difference as regards the admissibility of such evidence whether the result was good or bad. It was inadmissible in either event.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.
American Medicine (Philadelphia), April 26.

- 1 *Pneumonia: An Acute Self-Limited Systemic Infection. Stephen S. Burt.
- 2 *Marrow and Spleen Cells, Considered in Their Relation to the Blood-Cells. Edward T. Williams.
- 3 Principles of Hydrotherapy. Otto Lerch.
- 4 *A New Method of Bisecting the Uterus. Charles H. Richardson.
- 5 Anomalous Position of Cecum and Colon from Failure of Rotation. W. L. Grant.
- 6 A Case of Extreme Gastroptosis. E. T. Rullison.
- 7 *The Serum Treatment of Pneumonia. Joseph Eichberg.
- 8 *The Examination of the Blood in Relation to Surgery of Scientific, but Often of No Practical Value, and May Misguide the Surgeon. J. M. Baldy.

New York Medical Journal, April 26.

- 9 On Blood Pressure Under the Influence of Acute Overstraining of the Heart. Theodor Schott.
- 10 *A Further Contribution to the Study of Summer Diarrhea. Charles G. Kerley.
- 11 *Acute Joint Diseases of Infancy. T. Halsted Myers.
- 12 *A Peculiar Symptom in Typhoid Fever. W. C. Doane.
- 13 The Mission of Societies for the Prevention of Consumption in the Antituberculosis Crusade. S. A. Knopf.

Medical Record (N. Y.), April 26.

- 14 Abdominal Echinococcus Cysts. Frank Hartley.
- 15 *Treatment of Pneumonia. Stephen S. Burt.
- 16 *Questions of Priority in the Surgical Treatment of Chronic Bright's Disease. George M. Edebohls.
- 17 *The Modification of Breast Milk by Maternal Diet and Hygiene. Thomas S. Southworth.

Philadelphia Medical Journal, April 26.

- 18 A Correspondence Between Dr. Regis and Dr. Sptzka; Reply to the Article by Dr. E. C. Sptzka, Entitled "Regenticides Not Abnormal as a Class," Which Appeared in the Philadelphia Medical Journal, Feb. 8, 1902.
- 19 *The Danger to the Public from the Ambulant Consumptive. J. O. Cobb.
- 20 A Branchial Cyst, the Wall of Which Contained a Small Hemangioma. W. M. L. Coplin. Clinical History. J. Coles Brick.
- 21 A Case of Adiposis Dolorosa. John B. Roberts.
- 22 Diseases of the Lachrymal Apparatus. Wm. Campbell Posey.
- 23 *Report of Several Cases of Corneal Complications in Conjunctivitis Due to the Koch-Weeks' Bacillus. Edward A. Shumway.
- 24 A Case of Diaphragmatic Hernia. W. Moser.

Medical News (N. Y.), April 26.

- 25 *The Diagnosis and Operative Treatment of Prostatic Hypertrophy, with Remarks on the Complications Before and After Operation. Ramon Gutierrez.
- 26 *The Indications for and Limitations of the Bottini Operation. Louis E. Schmidt.
- 27 *Gonorrhoea of the Prostate. Ernst R. W. Frank.
- 28 *Prostatic Hypertrophy. Lewis Schooler.

Boston Medical and Surgical Journal, April 24.

- 29 *The Serum Test for Blood. E. S. Wood.
- 30 *Notes on the Production of the Test Serum in Rabbits. W. F. Whitney.
- 31 *Notes on X-Light. William Rollins.
- 32 Osteosarcoma of the Elbow. Robert B. Osgood.
- 33 An Unusual Family History of Tuberculosis. A. H. Williams.
- 34 A Case to Illustrate the Advantages of the Correction of the Deformity of Pott's Disease. H. S. Warren.
- 35 Excision of the Hip for Congenital Dislocation. W. E. Blodgett.

Cincinnati Lancet-Clinic, April 26.

- 36 Address Before the Medical Department of Vanderbilt University. N. P. Dandridge.
- 37 Diseases of the Sigmoid Flexure. George B. Evans. *
Medical Age (Detroit, Mich.), April 10.

- 38 The Diagnosis of Pericarditis. Arthur R. Edwards.
- 39 Prophylaxis and Treatment of Bubonic Plague. S. J. S. Rogers.
- 40 The Treatment of Chronic Gastritis and Gastro-Intestinal Catarrh. William Wormley.

The Journal of Tuberculosis (Asheville, N. C.), April.

- 41 Light—Its Therapeutic Importance in Tuberculosis as Founded upon Scientific Researches. J. Mount Bleyer.
- 42 *Operative Intervention in Laryngeal Tuberculosis. W. Freudenthal.
- 43 Nutrition in Pulmonary Tuberculosis. A. W. Perry and Albert Abrams.
- 44 *Intratracheal Medication in Disease of the Respiratory Tract. Joshua L. Barton.
- 45 Culture Products in the Treatment of Tuberculosis. F. M. Pottenger.

Cleveland Medical Journal, March.

- 46 Nitrous Oxid and Oxygen as an Anesthetic. John F. Stephan.
- 47 Observations upon the Relative Progress of Surgery in America and Europe. Dudley P. Allen.
- 48 Foreign Bodies in the Esophagus. N. Stone Scott.
- 49 Medical Legislation in Ohio—A Remedy for the Difficulties Met with in the Enforcement of the Present Law. Frank Winders.

- 50 Purulent Ophthalmia of the New-Born. Edward Lauder.
- 51 The Surgical Treatment of Cancer of the Stomach. F. E. Bunts.
- 52 Arsenical Paralysis from Arsenic Administered Medicinally. D. N. Kinsman.
- 53 The Southwest for Pulmonary Tuberculosis. Guy H. Fitzgerald.

Medicine (Detroit, Mich.), April.

- 54 Some Results of Hearing-Tests of Chicago School Children. D. P. MacMillan.
- 55 *Operative Treatment of Hemorrhoids. Charles F. Nassau.
- 56 Uterus, Gross Specimen and Sections; Also Sections of the Liver, Kidney and Bladder, from a Case of Puerperal Sepsis Due to Mixed Infection by the Cocci of Suppuration and the Bacillus Coli Communis and Other Organisms; Also a Preliminary Consideration of a Morbid Process Affecting Unstriated Muscle (Particularly the Elastica) Not Heretofore Described. W. M. L. Coplin.
- 57 Case of Aneurysm of the Sinus of Valsalva, with Rupture into the Pericardium. J. Allison Scott.
- 58 Parasitic Hemoptysis—The Paragonimus Westermanii; Its Pathologic Significance in Men and Some of the Lower Animals. Wm. E. Magaziner.
- 59 Bullet-Wound of the Orbit; Eye Destroyed by a Fragment of Bone—A Clinical and Pathologic Report. Charles W. LeFevre.

Medical and Surgical Monitor (Indianapolis), April 15.

- 60 The Treatment of Wounds. A. J. Banker.
- 61 Peritonissilar Suppuration. John J. Kyle.
- 62 Clinical Significance of the Tongue. Samuel E. Earp.
- 63 Diagnostic Points in Digestive Diseases. Simon P. Scherer.

American Journal of Obstetrics (N. Y.), April.

- 64 *Deciduoma Malignum. Louis J. Ladinski.
- 65 *Anatomy of the Menstruating Uterus. Palmer Findley.
- 66 *A New Symptom in the Diagnosis of Dystocia Due to a Short Umbilical Cord. Samuel M. Brickner.
- 67 *Selected Cases of Appendicitis. W. P. Manton.
- 68 Phleboliths of the Ovarian Veins Simulating Ureteral Stones. John G. Clark.
- 69 Obstruction of the Ureter Caused by an Enlarged Spleen Lodged in the Pelvis. Lindsay Peters.
- 70 Vaginal Hysterectomy for Cancer with Four-Months' Pregnancy. J. F. Baldwin.
- 71 Fibrosarcoma of the Uterus. J. Riddle Goffe.
- 72 Acute Yellow Atrophy of the Liver as It Occurs in Women. George T. Harrison.
- 73 *The Significance of Albuminuria Occurring in Pregnancy. E. E. Morse.

Medical Herald (St. Joseph, Mo.), April.

- 74 The Distal Arterio-Ureteral Crossing. Byron Robinson.
- 75 The Warrior Microbe; Or, the Gonococcus at Waterloo. B. F. Gillmor.
- 76 Etiology and Treatment of Infantile Diarrhea. C. L. Lawless.
- 77 Blood Examination: Its Value as a Diagnostic Measure. Frank O. Reynolds.

American Practitioner and News (Louisville, Ky.), April 1.

- 78 *Treatment of Tuberculosis of Testicle and Epididymis. Iryin Abell.
- 79 Organic Stricture of the Urethra, with Supplemental Treatment. Henry Orendorf.

Canada Lancet (Toronto), April.

- 80 How to Live to Prolong Life. James Grant.
- 81 Some of the Diagnostic and Therapeutic Uses of the Roentgen Rays. James Third.
- 82 Infection and Contagion. E. B. Shuttleworth.
- 83 Multiple Uterine Fibroids Complicated by a Three Months' Fetus. John M. MacDonald.
- 84 A Case of Jacksonian Epilepsy. Frank W. HaM.
- 85 Notes on Beri-Beri. Colin A. Campbell.
- 86 The Cardiac Complications of Gonorrhoea. H. B. Anderson.

Archives of Pediatrics (N. Y.), April.

- 87 *Pyloric Stenosis in Infants, with a Report of Cases. E. W. Saunders.
- 88 *The Leucocyte Count in the Diagnosis of Diseases of Children. George D. Head.
- 89 *Enlarged Bronchial Lymph Nodes in Children. Alfred Friedlander.
- 90 A Note on the Treatment of Gastrointestinal Hemorrhage in the Newly-Born by Suprarenal Extract. L. Emmett Holt.
- 91 A Case of Mongolian Imbecility. Phillip F. Barbour.

Denver Medical Times, April.

- 92 *Report of a Case of Acute Hemorrhagic Gangrenous Pancreatitis. Leonard Freeman.
- 93 Exegesis of Medical Ethics. R. G. Woodworth.
- 94 La Grippe. W. B. Parsons. (See No. 127.)
- 95 "Thou Shalt Suffer No Witch to Live." James Welr, Jr.
- 96 Report of Surgical Cases. (Intestinal Obstruction, Etc.) I. B. Perkins.

Annals of Surgery (Philadelphia), April.

- 97 *An Experimental and Clinical Research on the Temporary Closure of the Carotid Arteries. George Criele.
- 98 Stereoscopic Radiography. Alexander B. Johnson.
- 99 *Prostatectomy by the Perineal Route. Parker Syms.
- 100 *Intestinal Obstruction from Meckel's Diverticulum. Albert E. Halstead.
- 101 *Meckel's Diverticulum Patent at the Navel. Joshua C. Hubbard.
- 102 Hernia of Meckel's Diverticulum. R. E. Webster.
- 103 Bone Cysts—A Case in Which the Humerus Was Involved, with the X-Ray and Microscopic Findings. Eugene R. Corson.

Western Medical Review (Lincoln, Neb.), April 15.

- 104 *The Use of the Gall-Bladder to Restore a Prolapsed Liver. A. F. Jolas.
 105 Hysteria: Its Etiology and Management. Joseph M. Aikin.
 106 Personal Experience with Contused, Gunshot and Stab Wounds of the Abdomen. J. E. Summers, Jr.
 107 A Simple Method of Extension in Fracture of the Metacarpal Bones, and Oblique Fracture, Simple or Compound, of the Forearm. W. W. Grant.
 108 Our Hospitals. H. D. Niles.
 109 An Old Shoulder Luxation—Report of a Case. J. Rudis-Jcinsky.

Annals of Otolaryngology and Laryngology (St. Louis), February.

- 110 *Perforation of the Septum Narium, from a Study of Twenty-five Cases with Regard to Etiology and Pathologic Significance. Charles W. Richardson.
 111 A Case of Isolated, Unilateral, Latent Empyema of the Sphenoidal Sinus with Delirium and Mental Symptoms. Recovery. Jonathan Wright.
 112 Superheated Compressed Air in the Therapeutics of Chronic Catarrhal Otitis Media. George W. Hopkins.
 113 The Recording of Ear Cases. B. Alex. Randall.
 114 *Salient Points in the Treatment of Syphilitic Lesions of the Nose and Throat. Carolus M. Cobb.
 115 *Treatment of Laryngeal Tuberculosis. J. Price Campbell Brown.
 116 *A Year's Experience in the Treatment of the Eustachian Tube by Means of the Electro-Bougie. Thomas J. Harris.
 117 Contribution to the Study of Antrectomy. Olivier Lenoir.
 118 Hysterical Mutism in History. Raoul Leroy.

Merck's Archives (N. Y.), April.

- 119 Some Methods and Combinations Which Have Proved Particularly Valuable in My Personal Experience. William J. Robinson.
 120 A Study of the Effects of Alcohol upon Longevity. J. M. French.
 121 Convulsions in Children. J. H. Spiegelberg.

International Medical Magazine (N. Y.), April.

- 122 A Report of a Case of Tertian Estivo-Autumnal Malarial Fever and Two Cases of Hemoglobinuric Malarial Fever. W. E. Fitch.
 123 *Fistula in Ano: Its Relation to Phthisis. Samuel G. Gant.
 124 *The Laboratory Diagnosis of Typhoid Fever. A Robin.

Medical Sentinel (Portland, Ore.), April.

- 125 Insanity and Crime. W. T. Williamson.
 126 Eye-Strain a Cause of Persistent Headache. Adolph Blitz.
 127 La Grippe. W. B. Parsons. (See No. 94.)

Alabama Medical Journal (Birmingham), April.

- 128 Some Points in Diagnosis of Diseases of the Stomach. Cabot Lull.
 129 Roentgen Rays in Medicine. J. D. Gibson.
 130 Medical Jurisprudence. M. H. Collins.
 131 Report of Case. (Superfation.) R. C. Bankston.
 132 The Tubercular Diathesis. E. O. Williamson.
 133 Gonorrhoeal Rheumatism. J. Douglas Westervelt.
 134 Report of Health Officer of Jefferson County. J. M. Mason.

Journal of Medical Research (Boston), April.

- 135 Coccidium Infection of the Rabbit's Liver. E. E. Tyzzer.
 136 *Molluscum Contagiosum. Charles J. White and William H. Robey, Jr.
 137 *Culture Experiments with Malignant Tumors, 1900-1901. Oscar Richardson.
 138 Four Pathogenic Torulae (Blastomycetes). Joseph D. Wels.
 139 *The Relation of Blastomycetes to Cancer. Edward H. Nichols.
 140 Cell Inclusions in Cancer and in Non-Cancerous Tissue. R. B. Greenough.
 141 *Summary. Edward H. Nichols.

New England Medical Monthly (Danbury, Conn.), April.

- 142 Autobiography of the Late J. Milner Fothergill, M.D., London, Eng. (Continued.)
 143 Clinical Notes. (Differential Diagnosis of Appendicitis and Typhoid, Etc.) Charles Jewett.
 144 Toxemia as a Factor in the Prognosis of Typhoid Fever: Report of a Case Having a Very Low Temperature and Fatal Results. Daniel E. Keefe.
 145 Creosol in the Treatment of Acute Non-Tubercular Disease of the Respiratory Organs of Nurslings and Children. Wilhelm Meitner.
 146 Rheumatoid Meningitis. O. Henley Snider.
 147 An Effective Treatment for Septic Endocarditis. K. F. Wenckebach.
 148 Common Mistakes in Dermatologic Diagnosis. J. Abbott Cantrell.

1. **Pneumonia.**—Burt's essay summarizes as follows: "Pneumonia is an acute, self-limited, systemic infection, whereof the concomitants, though various, are chiefly pulmonary; it is endemic, occasionally pandemic, in many countries, and it occurs everywhere sporadically; regarding the lung tissue, the affection seems more in the nature of an exudation than an inflammation; the frequency of detection of the diplococcus in living blood in pneumonia suggests that by improved technic it will be found, like the plasmodium in malaria, invariably; infection of the heart muscles with resulting

degeneration has more to do with heart failure than mechanic obstruction; the exact significance of pathologic leucocytosis requires further elucidation; preëxisting fertility, as to the condition, determines the degree of infection, rather than the number of microbes, which are in quality unchangeable; although neglect of personal hygiene and of sanitation predisposes to pneumonia, unqualified good health, on the other hand, is a protection therefrom."

2. **Marrow and Spleen Cells.**—Williams finds that the marrow cells are basophilic, a fact which has hitherto been unnoticed. He has tested this by reagents and satisfied himself that the marrow cells are identical with the so-called large lymphocytes of the blood whose origin has been hitherto in dispute. The large lymphocyte is the true myelocyte of the blood. The oxyphile myelocytes of Cornil and Ehrlich, found only in diseased blood, are probably degenerated forms. He agrees with the statement of Clarkson that the marrow cells are capable of movement and finds that they are in all probability the progenitors of the multinuclear leucocytes, a view also held by Boehm and von Davidoff. The spleen cells are predominantly red corpuscles. White corpuscles are far less common in the spleen than in the marrow. The obvious conclusion from his study is that red corpuscles are elaborated by the spleen. The spleen seems to have a less important tendency in the formation of leucocytes than the marrow and lymph glands and very little share in the production of multinuclears. It probable does contribute a few of the large unimuclear leucocytes designated by Virchow as splenocytes. This can, however, be practically of little value as they can not well be distinguished from the true basophilic myelocytes.

4. **Bisection of the Uterus.**—The method of bisecting recommended by Richardson is described by him as follows: Instead of making the incision in the median line, it is made on either side, beginning near the horn of the uterus, and carried down through the tissues of the walls of the uterus and cervix; so when completed one section contains practically the whole body of the uterus with its cavity, and the other only a narrow strip of the wall. A little practice will teach one to keep within the walls of the uterus. The hemorrhage is a trifle more profuse from the narrow strip than when divided in equal parts, but this is of minor importance. It will be seen at once that this method of bisection allows all the advantages of median bisection, but admits of no danger of infection from the uterine cavity, the heretofore principal objection of its opponents.

7. **Pneumonia.**—Eichberg favors the use of anti-pneumococcal serum in pneumonia and shows by statistics of various hospitals that the mortality is rather high in the ordinary treatment and certainly well above that reported with serum treatment by Pane and other authorities. He considers the method harmless and thinks that the large amount used should not weigh against it, as it causes only a temporary inconvenience. He reports several cases; and calls attention to the relief of cough and expectoration soon after the administration of serum. The process of resolution is apparently accomplished without any liquefaction, for no moist sounds were heard. Efforts to make blood counts failed on account of the prompt clotting of the blood in the counters.

8. **Blood Examinations.**—Baldy's article is a polemic one in reply to that of Willson, who criticised his views. He says that Willson's article really admits what he claims—that blood examinations are of scientific use, they are often of no practical value and they may misguide the surgeon.

10. **Summer Diarrhea.**—Kerley gives his experience with summer diarrhea in out-patients and has come to believe that its large mortality in infants is avoidable. Nevertheless, every case of summer diarrhea is dangerous and should be treated vigorously no matter what the initial symptoms may be. Acute streptococcal or colon bacillus infection plays, he thinks, no large part in the beginning symptoms. A case of so-called dyspeptic diarrhea, with continued milk feeding, will soon become a virulent infection. The first thing to be done is to stop the milk and for a substitute he uses barley or rice water with chicken, beef or mutton broths in small quantities to prevent too much laxative effect. The white of egg mixture

he has discontinued, because it does not appear to digest readily in many children and forms as good a putrefactive culture medium as milk. Fever is always present and he quotes Hutchinson as stating that the leading characteristic of fever is increased destruction of nitrogenous tissues, but the apparent indication that we must supply proteids is not correct as it is impossible to bring about a condition of nitrogenous equilibrium in acute fevers in this way and it increases the strain upon the kidneys—thus aggravating the condition. The loss of fluid by the intestines in summer diarrhea makes the urine more concentrated, hence, more toxic to the kidney structure, and, as Hutchinson says, we must see that proteid spacers are more abundantly represented in the diet as well as a liberal supply of carbohydrates. The by-products of these are thrown off through the lungs as carbon dioxide and thus the body is sustained and the kidneys rested. The condition of the intestinal contents is changed from putrefaction to fermentation and is less favorable to the growth of dangerous pathogenic organisms. He finds that dextrinized gruels have a useful field in the diets for summer diarrhea. The patient is to be kept in the largest room and, if febrile, sponged with water at 80 F. for fifteen minutes several times a day. The resumption of the milk diet should be gradual while the patient convalesces. For drugs Kerley uses calomel in cases of vomiting, giving 1/20 to 1/10 of a grain by hypodermic injection. Castor oil is given in acute septic cases with infrequent stools and without stomach involvement, in which a prompt washing out of the small intestine is desired. In all cases, bismuth in large doses was given every one or two of the waking hours, but to be serviceable it must produce black stools. In a few cases it goes through the bowel unchanged and exerts no influence. He credits this to absence of sulphuretted hydrogen in the intestine, due doubtless to the absence of pancreatic digestion. In such cases he gives a grain of precipitated sulphur with each dose of bismuth. Opium is indicated where there is severe pain or tenesmus, and very frequent stools. Four or five stools a day he considers not too many; simply maintain proper drainage. When the case is one of intestinal infection, with infrequent foul discharges or none at all, active laxatives constitute the only medication. Many children are sacrificed because of the notion that the diarrhea must be completely stopped. Irrigation of the colon has been overdone. It does not follow that, because a child has diarrhea, irrigation should be used. Ten or twelve loose, watery discharges wash out sufficiently without requiring anything further. Patients that are benefited by irrigation are those that have a moderate number of green mucous stools with or without blood. Cases to be irrigated are those in which there is something to be washed away. He usually employs for such cases normal salt solution, or, if there is blood, a 1 per cent. solution of tannic acid, although he questions its special value. It is applied lukewarm, and, if there is a high fever, he uses it at 60 or 70 F.; in the very weak, with subnormal temperature and marked prostration, the solution is used at 110 F. The method of irrigation is described. As regards the medical management, a great deal rests with the proper education of the mother and prophylaxis. The child should be properly fed and great care should be taken to prevent infection of the bottle and nipple; the mother should be told to wash her hands with soap and water before preparing the baby's food. Municipalities should establish milk laboratories and stations where sterilized milk and cereal gruels should be furnished free to the poor, and at small cost to others. The educational program should be thoroughly carried out.

11. Joint Disease of Children.—The different forms of joint disease occurring in children are reviewed for diagnosis by Myers, who finds the complete blood examination of considerable value in determining whether abscess exists or not. The treatment of the different types is also mentioned, including the mechanical treatment. We should act not only for the immediate relief of the symptoms, but also with regard to the ultimate results. For instance, early incision only can save the head of the femur in acute epiphysitis. If this is not saved, the ultimate result resembles congenital dislocation, but

is worse because reposition is impossible. Sometimes, however, dislocation does not occur and in these cases a very useful limb results. If the medullary cavity of a long bone is to be cleaned out, care should be taken not to destroy the living shell or to fracture it. The diaphysis should not be removed entire in a case of acute necrosis, but should rather be left as a splint until the bone forms. Myers says not to operate too quickly and completely in dactylitis, if we wish always to save the shape of the finger. Osteomyelitis about the knee-joint is very apt to be followed by partial subluxation of the joint or atrophy of one condyle. Of course, the proper use of splints will do much good in preventing deformities. As regards medical treatment, he speaks particularly of good diet, hygienic surroundings, etc.

12. Typhoid Fever.—Doane recalls the statement by Trousseau that unilateral deafness occurring in typhoid is of grave import, while a similar bilateral condition is a favorable sign. He has found this a valuable point in the prognosis. The cause of the condition is unexplainable to him, but he offers the fact to the profession as of some interest.

15. Pneumonia.—The recapitulation and substance of Burt's article is given as follows: "Pneumonia primarily owes its shortness and self-limitation to the perishability of its micro-parasite; the type of the disease depends upon the condition of the individual; pneumonia simply as pneumonia requires no interference; diplococci thrive best at the normal human temperature; fever inhibits the growth of the parasite and is therefore beneficial; high fever indicates extensive infection, meantime varying degrees of reactive ability; low fever either inability to react or else moderate infection; specific medication is unnecessary in pneumonia, if not pernicious; it is imperative to disinfect dejecta and expectoration; aconite and its congeners are injurious; bleeding is seldom required; opium, checking renal activity, in large doses is contra-indicated; in old persons opium is exceedingly dangerous; oxygen is useful, but not indispensable; alcohol is valuable as food, and it conserves energy; strychnia, ammonia, alcohol and nitroglycerin in large doses, as stimulants, should be reserved for emergencies; subcutaneous infusion of a physiologic saline solution is invaluable for renal elimination of poisonous accumulations; last, though not least, specific remedies at best are but makeshifts, prevention of infection is the desideratum."

16. Bright's Disease.—Edebohls argues for his priority over A. Rose in the matter of surgical treatment of chronic Bright's disease, and reviews the literature in support of his opinions.

17. Breast Milk.—The point made by Southworth is the importance of instructing mothers in regard to the value of their diet and hygiene so as to be able to successfully nurse their infants. His directions are simple, such, for example, as the addition to plain sensible food of cornmeal gruels and the disuse of coffee and tea and substitution of cocoa. He insists on the importance of mothers nursing their children and thinks there would be little difficulty if they would sacrifice social dissipation and unsuitable food for the sake of the child.

19. The Ambulant Consumptive.—This article deals with the importance of care as to the sputum; cough, etc., on the part of the consumptives. The author takes what might be considered rather extreme views. The greatest danger to the public in his opinion is because consumptives do not die quick enough. He thinks it would be a blessing if the disease were a rapid one and carried them off quickly. A large part of his paper is devoted to the description of portable cuspidors. He speaks positively in regard to spitting, saying it is a crime to spit on the floor or ground and should be treated as such, and all receptacles and public cuspidors should be done away with. Tobacco chewers deserve no consideration, and we have met all the needs of the consumptive when we give him a practical, easy and efficient way to handle the sputum.

23. The Koch-Weeks Bacillus.—From these cases here reported Shumway deduces the following conclusions: 1. The Koch-Weeks bacillus conjunctivitis is apparently becoming more common in Philadelphia than has been hitherto observed. 2. It may present itself in a particularly severe form, and be complicated by phlyctenules and even by corneal ulceration.

3. These cases are especially contagious, and extra precautions should be taken to prevent their spreading, particularly among school children. 4. As a rule, they are controlled by the use of mild astringent lotions and applications of 2 per cent. solutions of nitrate of silver. We have not tried protargol, but equally good results have been obtained by other observers, when the solutions used have been of sufficient strength, viz., 10 to 20 per cent.

25. Prostatic Hypertrophy.—Guiteras notices the diagnosis, indications for operation, choice of operation and indications for each. He rather favors prostatotomy or the Bottini method, but shows that prostatectomy, according to one or other of the methods used, has its advantages in many cases. His conclusions are: 1. That the general practitioner should be educated to palpate the prostate and to use the other simple means of diagnosis employed in determining the shape and size of the organ. In default of previous training in rectal palpation, he should at every opportunity familiarize himself with the feel of a normal prostate, and should thus educate his touch for prostatic diagnosis. 2. That the prostate corresponds pathologically in the male to the uterus in the female, and that its examination is just as important as uterine palpation, in which the general practitioner is, as a rule, far more expert. 3. That in prostatitis the care of the bladder before operation is a prime factor. The importance of training such persons to observe the minutiae of catheter life, of making the kidneys as active as possible, and of rendering the urine as nearly normal as possible before prostatic operations, can not be overestimated. 4. That every prostatic operation should be preceded by a thorough general examination, including an examination of the heart, the arteries, the urine, the bladder (for possible presence of stone or tumor) and of the urethra (for possible presence of a stricture), as well as by palpation of the kidneys. 5. That the statistics of the results of prostatic operations demonstrate that the successful cases belong most frequently to the class having a small amount of residual urine and a moderate prostatic enlargement. An early diagnosis is, therefore, of paramount importance. 6. That the choice of the operation must be based upon the lines drawn here, according to the age, the resisting power of the patient, and the size and shape of the prostate, with special reference to the seat and extent of the hypertrophy, as well as the condition of the kidneys and bladder. 7. That in the conduct of prostatotomy as well as prostatectomy the prime object is to avoid so far as possible the occurrence of shock and to prevent the congestion of the kidneys by proper precautions during and by proper treatment after the operation.

26. The Bottini Operation.—The contra-indications for the Bottini operation are by Schmidt not considered so general as some have held. He says that good results have been obtained in some cases under conditions against which we have been specially warned, such as nephritis, morbid conditions of the kidneys, ureters and bladder, general arteriosclerosis and pyemia. Still, we must take these things into consideration. He emphasizes, however, that if thorough cystoscopic examination can not be made, it is best not to undertake the operation. He thinks the objection that cicatricial contraction results is not warranted by facts—provided that the method be correct. Poor technic is responsible for a large number of complications. He would not, however, be understood to declare the Bottini operation an easy one or that anyone can perform it. It is on account of such ideas that we hear of bad results. We should always be able to recognize any accident that may occur or complications that may arise subsequently and it must not be forgotten that the after-treatment plays an important part in the results. The conclusions which he draws are that good results of operation will depend: 1. On careful selection of cases. 2. On proper technic of the operation and proper after-care. 3. On immediate correction of errors or mishaps.

27. Gonorrhoeal Prostatectomy.—Frank holds that adequate therapeutic measures limit the frequency of involvement of the prostatic urethra and says that in the majority of cases that he has examined he finds gonococci in the prostatic juice. He calls attention to the possibility of infection dwelling in

this part while the apparent conditions are those of recovery. His method of examination of the prostatic secretion is as follows: "After thoroughly washing the posterior and anterior urethra with a solution of protargol. I insert a sterile endoscopic tube to the end of the membranous portion and cleanse the mucosa in the field of absolute dryness. This cleansing is done with sterile cotton tampons. I then take from the tube the juice obtained by massage and examine it. In some cases I limit my work to thorough washing of both urethral divisions and avoid expelling the juice removed from the prostate by massage, by pressure upon the pendulous portion, as is often done. By this latter manipulation the contents of the glands and lacunae of the anterior urethra are expressed and the results obtained are consequently not free from objectionable features. Even without pressure upon the pendulous portion, prostatic secretion almost invariably presents at the meatus several moments after prostatic massage. The examination by means of the tube must always be followed by washing of the anterior and posterior urethra. The fact that of 37 cases I examined in this manner one was affected with epididymitis fourteen days later, shows that no danger to the patient is incurred thereby." He explains the cystic changes that may occur from the continuance of the condition. It is only by the finger that the proper diagnosis can be made. Rigid instruments are inadequate and may have bad results. If gonococci are present he finds the use of a silver preparation advisable; protargol is best. If other bacteria be found, a mild solution of corrosive sublimate is of use for irrigation. It is important when other bacteria than the gonococci are present to give attention to thorough asepsis of the lowest portion of the intestinal canal, and he considers local treatment by massage injurious when there is any elevation of temperature. As a prophylactic method against the occurrence of gonorrhoeal prostatitis he has adopted the following plan: "After the microscopic diagnosis is made, the patient is ordered to urinate. If the second urine be clear, the anterior urethra is gently irrigated with a 0.25 per cent. solution of protargol until the solution flows off clear. If the patient be hypersensitive, the urethra is cocainized with a weak solution (1 to 200), to which some protargol is added as a precautionary measure. Then, closely following Janet's directions, a copious irrigation is applied to both urethrae with the same protargol solution. The fluid is allowed to enter the bladder until the patient experiences a desire to urinate; this requires about .25 to .5 of a liter. The patient then empties his bladder. This procedure is repeated on the two following days. After the first twenty-four hours have elapsed, the discharge, which was purulent and abundant, has become sparse and serous and in most cases gonococci can not be found. Leucocytes disappear in a similar manner and the specimen shows only an abundance of epithelia and fibrin. If, however, gonococci persists to the third day, it shows that the disease has not been aborted. The cause of the failure is that the prostate was already infected, or that para-urethral passages exist, in which gonococci are beyond the reach of treatment, or deformities of the urethral mucosa, folds, or valves may be the cause of the failure. In the latter cases slight surgical intervention brings immediate relief." He has treated 50 cases in this manner with very good results, showing that in a large number of the cases rapid disappearance of the gonococci can be secured by this abortive method if undertaken sufficiently early.

28. Prostatic Hypertrophy.—The symptoms and diagnosis are first noted by Schooler. The prognosis depends on the early diagnosis and prompt treatment. He has no confidence that drugs will affect the growth. Massage, he thinks, is also useless and may be harmful. Catheterization, while palliative, is almost invariably liable to produce infection. Dilatation has its best results in incipient cases and better effects will be obtained if the patient is made to understand the necessity of frequent seances and their long continuance. Cystotomy is a temporary or procrastinating procedure and is most useful where the bladder is affected or cystitis exists as a complication and it also offers a chance for better examination. He thinks we need a better knowledge of the anatomy of the

gland. Its pathology calls for an advance in our therapeutic resources for something more than to temporarily relieve the constant threat to the life of the patient.

29. **Blood Serum Test.**—Wood briefly reviews the history of blood antisera as a test and describes the method of preparing rabbits to obtain the serum. He has recently applied the serum test in a murder case now on trial and obtained positive results.

30. **Blood Serum Test.**—Whitney has tried two parallel series of experiments with hydrocele serum and blood serum and finds a better reaction of one in one case and of the other in the other. He thinks that further experiments are necessary before it can be decided whether the hydrocele fluid or the ordinary blood serum is most effective. The only indication that we have beforehand whether a rabbit will yield a strong antiserum is the apparent slowness of the coagulability of the blood in those that have given the best reactions in his observation. If this is more than a coincidence it might be used in selecting the animal for injection. He insists on the importance of the blood serum test in medicolegal cases.

31. **X-Light.**—Rollins first describes certain apparatus and criticises the patent law under which previously published methods or appliances have been patented. He believes that we should use much more powerful apparatus and have it at greater distance in therapeutic work. All kinds of x -light may produce burns. The kind should depend on the seat of disease. For superficial disease we should use radiation from a tube of low resistance which is most easily absorbed by these tissues; if we wish to treat internal diseases, we should use the radiation from a tube of high resistance, which is less absorbed by the superficial tissues and is more available for affecting the internal organs. He says we need powerful apparatus and should encourage experimenters who are working to produce such. At the present time the most important problem is to find instruments for measuring the intensity of x -light. One of the required instruments should quickly show the therapeutic power of the x -light and another should tell its full photographic intensity, which, until we get an actinometer, should be judged by a tungstate of calcium screen and not by one of platinumocyanid of barium. Until we get x -light powerful enough to take instantaneous photographs of the heart and other organs we should not slacken our endeavors to construct and use more powerful apparatus.

42. **Laryngeal Tuberculosis.**—Freudenthal reports the results of 29 cases on which he has operated; only about one-half the total number. Of these 29 thoroughly recorded, 7 showed slow amelioration and 4 almost immediate improvement. Of the 18 unimproved cases, 13 were in advanced stages of pulmonary phthisis, 5 were in the earlier stages. None of them received any benefit from curettement, and the majority, indeed, thought their health was hurt by the operation. In many of the cases he was of the same opinion himself. From his results he is led to believe that patients do just as well without curettement and are perhaps better off. He has applied this idea for one year without doing any curettement and remains of the same opinion. There are two conditions to be met when we operate—intense pain and dyspnea. He leaves the covered infiltrations alone as long as possible to avoid producing ulcers, but treats topically in most instances with his orthoform-menthol emulsion described in THE JOURNAL of March 16, 1901. This will usually relieve the patient if it can reach the spot. Where we can not apply it, however, he would recommend curettement in some cases when no other means will relieve the pain of the patient, though admitting that relief will be very temporary. In case of laryngeal dyspnea we must in some way relieve the condition. The question is, what are we to do? He never recommends tracheotomy except in very urgent cases. Laryngofissure would be more advisable, but most patients can not stand such an operation. The only thing left is curettement. In the last two years he has done very little in the way of operating in these cases, but considers there are a few cases in which endolaryngeal procedures are of some benefit.

44. **Intratracheal Medication.**—Barton holds that the ob-

jections to intratracheal medication of its interference with respiration and excitation of severe cough are fallacious. The sensitiveness is largely confined to the larynx and what goes below that produces little trouble and often immediate relief. His wider experience has led him to hold such objections groundless. The ordinary aspirating syringe holding 2 drams, with curved endolaryngeal tube seven inches in length, can be introduced by the physician, the patient sitting with his tongue drawn out and head thrown back. The tube should be introduced in the median line, carrying the curved portion over the base of the tongue, raising the elbows high enough to insure the point of the tube passing under the edge of the epiglottis. The patient is instructed to avoid swallowing, to keep the tongue well drawn out, and to take a deep inspiration. As he inspires, the contents of the syringe is thrown quickly into the larynx, the ingoing current of air causing it to pass directly into the trachea, producing almost no laryngeal irritation. The intratracheal medication probable has some of its good results by affecting the nerve system of the whole body, as it is probable that the action can not be confined entirely to the part. It excites the vasomotor and trophic systems and at the same time it acts as a local treatment to the dilated mucous surfaces. He does not offer it as anything like a real cure for tuberculosis but is a powerful adjunct to other treatment.

45. **Serum Treatment of Tuberculosis.**—Pottenger concludes that culture products do have a specific action upon tuberculous foci. The early unfortunate experience with tuberculin has obscured this fact by its use in too large and frequent doses and in unsuitable cases and it was held responsible for all postmortem findings. The field of usefulness for culture products is where recent tubercles are found, especially in incipient cases. If used in advanced cases they will help to remove areas of recent infection, but must not be expected to remove dead, decaying or newly-formed tissue. Where used they should be reinforced by every measure at command, proper hygienic and dietetic measures prescribed and the patient's health attended to. If properly managed and used the proportion of cures is greater than when they are not employed and they produce an immunity protecting the patient from relapse and make a permanent cure more often than hygienic and climatic treatment alone, which facts should be sufficient to warrant their employment.

55. **Hemorrhoids.**—Nassau describes the method he learned while assistant to Halsted in the Johns Hopkins Hospital. It consists essentially in slight stretching of the sphincter, not paralyzing the muscle, putting a gauze tampon well up into the bowel with the speculum and then making a circular incision just within the margin of the skin. This incision includes more than one-half the anal circumference and is carried into the wall of the rectum until the fibers of the external sphincter are reached, which latter must not be injured and, as a rule, can be easily stripped from the rectal wall. The bowel can then be readily pulled down until the dissection is carried above the hemorrhoidal area. During the operation, bleeding vessels must be caught as soon as they are cut or previously where this is possible. Before the incisions are closed all bleeding points caught by the artery forceps should be tied. In this method of operating, secondary hemorrhage never occurs, providing the bleeding vessels are ligated. As a rule, it is not necessary to include the whole circumference of the bowel, if care has been taken to leave the healthiest portion unincised. At this stage the hemorrhoids are cured, that is, the blood supply is completely cut off. Three interrupted subcutaneous silk sutures are placed in position to anchor the bowel to the skin. Each stitch includes the walls of the bowel, but does not puncture the mucous membrane. The redundant hemorrhoidal tissue is then cut away by transverse incision, the bleeding points are ligated and the skin and mucous membrane are closely approximated by interrupted sutures of fine silk. If a complete circular incision is required, the anchoring sutures are introduced and the remaining work finished before the introduction of the final stitches. To obliterate any "dead space" a one-half inch rubber tube four inches long is wrapped in gauze until it has a diameter of one inch and then covered with boric acid ointment and placed in

the rectum so that it protrudes slightly. This should be done with the speculum. A cord should be passed through the protruding end of the rubber tube to facilitate removal. This rectal plug should be removed in six to twelve hours, though he has left it longer. An opium and belladonna suppository will relieve tenesmus. On the fourth day the bowels are moved by divided doses of calomel or by enemas of cottonseed oil followed by soap and water. The patient may get up on the sixth day and be discharged on the tenth. The operation can be performed under local or general anesthesia. Full asepsis of the parts, thorough washing and sponging, preliminary cleansing of the bowel are, of course, required. He asserts that the advantages of the operation are as follows: "1. The sphincter is not injuriously dilated; 2, the wound is not open to infection from the bowel; 3, the blood supply to the pile-bearing area is obliterated; 4, in the majority of cases little and in some no tissue is excised; 5, healing is rapid; 6, recurrence is a rarity."

64. Deciduoma Malignum.—Ladinski reports a case of this disorder and analyzes the symptoms. He considers it a special form of malignant disease associated with the reproductive function and different from the ordinary malignant uterine growths. The clinical features which should aid us in reaching a diagnosis are: "1. History of recent parturition or abortion, especially if a hydatid mole has been discharged or placenta retained; 2, profuse hemorrhage occurring at irregular intervals, without apparent cause, not amenable to the ordinary means of treatment and which recurs in spite of repeated curettings, there being a constant sanguineous discharge during the intervals between hemorrhage; 3, a persistently large and hyperplastic uterus and cervix, with a patulous os; 4, pain in the pelvis; 5, anemia, rapid loss of flesh and strength and cachexia; 6, characteristic nodule in interior of uterus in the early stage; 7, the presence of metastatic deposits, especially in the vagina and lungs, the latter producing cough and bloody expectoration." The prognosis is bad though there are records of 51 recoveries out of 124 cases. It should be remembered that recoveries are reported where only the immediate results of treatment are recorded and the mortality loss would probably be much increased if the data were complete. The causes of death in these cases were metastases in other organs in 47 cases, labor and exhaustion in 20, perforation of the uterus and uterine hemorrhage in 4 cases, operation, shock and sepsis in 2 cases. The lapse of time between the termination of pregnancy and death as it occurred after mole, labor at term or abortion were from three days to six years in mole, and two weeks to one and one-half years in abortion cases and from one to nine months after labor at term. The average was from four to six months. The only treatment is the operative; especially in any case of hydatid mole the pregnant uterus should be emptied as soon as possible after the character of the pregnancy is ascertained. If microscopic examination of the cyst shows any atypical proliferating cells or if there are any symptoms of malignant degeneration of the uterus, he thinks it is within the limits of conservatism to agree with Neumann that the uterus should be extirpated. Every patient whose history is the least suspicious should be submitted to a microscopic examination and thorough exploration at the earliest possible opportunity. The paper ends with summaries of 132 authentic cases and an extensive bibliography.

65. The Menstruating Uterus.—From a study of the subject and the literature, Findley concludes that menstruation is shown to be not a shedding process; the loss of epithelium is purely accidental and limited. Previous observations which indicate it otherwise were at fault in the selection of material which had undergone cadaveric and degenerative changes.

66. Short Cord.—Brickner calls attention to a symptom of short cord, consisting of frequent, jerky discharge of urine in the intervals of the pains of the second stage, which is easily interpretable, significant of the condition and of no other, and logically explainable. He summarizes the diagnostic points of short cord in the order of their importance as follows: "1. Recession of the head in the intervals of pains; 2, urination in small quantities in the intervals of pain after the establishment

of the second stage; 3, arterial bleeding during and between uterine contractions; 4, pain over the placental site, especially during a uterine contraction or during the application of the forceps; 5, a desire of the patient to sit up; 6, uterine inertia."

67. Appendicitis.—From a microscopic study of selected cases of appendicitis Manton concludes that: "1. Appendicitis is never an uncertainty, never a doubtful condition. 2. It is in all its forms a serious disorder, fraught with the gravest dangers to somatic health and life itself. 3. It is always a surgical disease and, as such, should not be subjected to the dangers and insufficiencies of medical treatment."

73. Albuminuria in Pregnancy.—The significance of albuminuria in the urine in pregnancy is considered less important by Morse than it is usually held. The weight of evidence, he thinks, seems to be against the reliability of albuminuria as a symptom of serious importance and careful urinary analyses show definite relation between urea and the development of toxic symptoms.

78. Tuberculosis of the Testicle.—This article is a review of the literature and of the various opinions of authors. Abell finds the following deductions warranted: The epididymis is the most frequent starting point of urogenital tuberculosis. It is usually secondary to some other focus, but may be a primary deposition. The testicle is rarely primarily affected, but as a rule secondarily so from the epididymis. When the epididymis is primarily infected through the blood supply, the process is probably an intratubular one; the same is the case when it is secondary to other urogenital foci in other parts of the genital tract, and even distant lesions do not necessarily contraindicate operation, since, when operated early, there is evidence that the foci in the genital tract recover as a rule and frequently healing of a distant lesion has been observed following the operation. Castration should be limited to those cases in which the process has invaded the testicle proper. Epididymectomy with high resection of cord after the method of Villeneuve is to be practiced in all other cases.

87. Pyloric Stenosis.—The symptoms of this condition are described by Saunders and several cases reported. He notes the intermittent character of the symptoms in some cases and suggests a spasmodic action of the pylorus with secondary hypertrophy as held by Thomson and Pfaunder. The treatment should be the use of some drug that will overcome the violent contraction of the pylorus, as such he recommends belladonna, bromids and chloral. Opiates should not be given, as they impair the function of the stomach. For the treatment of secondary gastric irritation, the stagnated contents should be washed out and rectal feeding resorted to from time to time; nothing but water being given by the stomach for twenty-four hours or more. When oral feeding is again resumed, the stomach should be washed out occasionally to remove a possible residuum of undigested food. The diet should consist of food which forms no coagulum in the stomach, and this has not been sufficiently emphasized. Milk or any food containing undigested casein will not answer, therefore breast feeding by the mother is usually unsuitable, while the milk of a wet nurse in advanced lactation may succeed. Whey or peptonized milk or a mixture of both is generally the best food. The deficiency in fat should be supplied by cod liver oil, and a very small percentage of cream may be gradually added. The end to be accomplished is hypertrophy of the gastric wall without dilatation, hence the quantity of food should not be large. Gaseous distension of the stomach should be prevented. When the infant is failing in spite of rational treatment, surgical intervention should be advised.

88. The Leucocyte Count in Children's Disease.—Head, from his study of the subject, concludes that the blood count in sick children from two years upward is as noticeable and fixed as in adults suffering with the same diseases, and the information furnished is as reliable. The procedure should be followed more generally by physicians.

89. Enlarged Bronchial Lymph Nodes.—Friedlander finds this to be a very frequent condition. In 123 autopsies made at the New York Foundlings' Hospital, tubercular lymph nodes

were found in every case irrespective of the cause of death. The mechanism of the introduction of bacilli to the parts is explained; it is frequently from adenoids. The outcome, however, is generally favorable if properly treated. The principal early symptom is a peculiar paroxysmal cough, with frequent attacks at night and dyspnea without cardiac lesions. The physical signs may be lacking at this stage. Broadly stated, the physical signs of enlarged bronchial lymph nodes are always those of compression; inspection and palpation may afford suggestive facts. Percussion and auscultation may often be of value as may be dullness over the sternum and exaggerated respiratory murmur in the interscapular region. Cough without known cause, anemia, indigestion, etc., especially after the acute exanthemata, must be suspected. The main articles of diet should be milk, eggs and meat, with plenty of butter. An excess of starchy foods should be avoided. The patient should be kept in the open air and taken from school. The bowels and kidneys should be kept active. Three drugs are of special value, iodid of iron, cod liver oil and creosote. Creosote itself has apparently a specially good effect on the enlarged nodes. We must be prepared to arrest definitely a localized tuberculosis before general infection has ensued.

92.—See abstract in THE JOURNAL, xxxvii, p. 853.

97. **Compression of Carotids.**—In 18 cases reported by Crile, one or more carotids were closed, both in 10; one common carotid in 5; and one external carotid in 3. In all there were 28 closures of individual vessels. The ages of the patients varied from 7 months to 69 years. There were no deaths attributable to the temporary closure of the arteries and no later cerebral effects. Less anesthetic is necessary with closed arteries, especially in the cases in which common carotids are closed; there may be an embarrassed respiration. There were no appreciable late effects upon the vessel walls at the point of clamping. The operating time was much diminished on account of the freedom from blood, and the amount of blood lost was very much less. The application of the clamp may be accomplished through a very small incision and in several minutes. The proper interpretation of a slowed or of an accelerated pulse or of reflex inhibition of the heart from mechanical stimulation of the vagus or its branches by the use of atropin and cocain, the safe and absolute control of hemorrhage by temporarily closing the carotid arteries render operative procedure of the head and neck so much safer as to greatly increase the surgical possibilities. The compressing clamp blades were covered with rubber tubing, and the walls only approximated, not compressed.

99. **Prostatectomy.**—Syms describes his method and experiments and holds that prostatectomy is a primary and practical surgical procedure in suitable cases. It should be employed early. He believes prostatectomy by the perineal route to be the safest method thus far proposed for the radical cure of these great sufferers.

100. **Intestinal Obstruction from Meckel's Diverticulum.**—Halstead reports a case and describes the different methods in which the diverticulum may produce intestinal obstruction. He has collected 69 cases from the literature showing the treatment and operation in these cases. It is notable that among the last few cases reported, mostly by Chicago operators, the recovery rate was greatly in excess of the average in the literature of this condition.

101. **Meckel's Diverticulum at the Navel.**—This paper by Hubbard describes the origin of diverticulum patent at the navel, discusses the diagnosis, treatment and prognosis and reports a case of his own observation which was operated on with success. The existence of fistula discharging fecal material at the navel is essential for the diagnosis. The history is of importance to distinguish it from abscess and umbilical hernia caught in the ligature about the cord and left as a fistula by the falling of the cord. Umbilical hernia also protrudes on coughing or straining, which a diverticulum is said not to do and its outside is covered by serous, not mucous membrane. In the later stages the diagnosis may be more difficult. An open urachus must also be distinguished. The

direction taken by the probe and the character of the discharge are the main points of difference. Spontaneous cure is a rarity. Compression should be made as soon as the diagnosis is complete, but in complicated cases operation seems to afford the only chance of cure.

104.—This article appeared in THE JOURNAL of March 29, p. 803.

110. **Perforation of the Nasal Septum.**—This condition is not infrequent, it may occur at all periods of life and Richardson thinks it possible that it may be congenital. The most frequent type is that from syphilis. The characteristic local lesions of the disease, of course, must be noted. There are certain cases, however, where there is no pathologic evidence of organic disease. Among them are probably rare congenital cases. All cases where the perforation is slightly within the osseous septum involving the cartilage and bone, in which trauma, tuberculosis and lupus could be excluded, Richardson would without hesitation regard as syphilitic, even without history or evidence of constitutional taint. The possibility of producing perforation by boring with the finger-nail against the septum is hardly to be considered as tenable. All the theories advanced are enumerated by the author, and except Rosenfeld's, have in common a localized change taking place in the arterial supply to a limited area of the septum. It may be due to irritation, by drying of the mucosa, etc. He himself is inclined to believe in a destruction of the innervation of the cartilaginous septum whereby the resisting power of the structure is so impaired that an ulceration with molecular destruction of the cartilage takes place. Preponderance of perforation of the cartilaginous septum in persons affected with tuberculosis or with strong tubercular histories is rather more than a simple coincidence and he thinks that these infections are liable to produce a lack of resistance which may lead to degenerative changes with or without the characteristic histologic elements of tuberculosis.

114. **Syphilitic Lesions of the Nose.**—The salient points here noted by Cobb are summed up as follows: "1. Internal medication should be pushed to the limit of toleration for the individual case. 2. Prolonged hot baths are of use in bringing the patient quickly under the influence of antisiphilitic medication. 3. In syphilitic lesions of the nose and throat, we have infection by other bacteria and must therefore use antiseptics freely. 4. The local use of mercurials renders these lesions as amenable to treatment as external syphilitic ulcerations in other parts of the body."

115. **Laryngeal Tuberculosis.**—Brown has used intratracheal injections for chronic laryngitis and laryngeal pulmonary tuberculosis in a number of cases with advantage, using the same material as is used for stimulating sprays, viz., 1 to 2 per cent. menthol, .5 to 1 per cent. thymol, and 1 per cent. guaiacol and creosote solutions. Every patient that has been treated thus far has experienced benefit.

116. **Treatment of the Eustachian Tube by the Electro-Bougie.**—Harris draws the following conclusions from his experience as regards the use of the electro-bougie in morbid conditions of the Eustachian tube: "1. The electro-bougie has a place in our aural therapy—though a less important one than was at first supposed. 2. It should be used after and not before other methods of treatment. 3. It will be most liable to fail if any associated internal ear disease is present. 4. Its results are not always permanent—the stricture may reform—we may hope rather for a diminution than a disappearance of the tinnitus. Two cases were totally and 2 partially relieved out of 25. 5. Its use is not without danger—a proper knowledge of the anatomy of the parts and of the technic is essential. 6. It is a question whether the process is a true electrolytic one, or if in many instances the obstruction is a true fibrous stricture."

123. **Fistula in Ano.**—The following are the points made by Gant in regard to the relations of fistula in ano to tuberculosis: "1. Tubercular fistula of the anus is usually secondary to phthisis. 2. Pulmonary tuberculosis is rarely, if ever, secondary to anal fistula before or after operation. 3. Tuberculosis of the anal region should be dealt with as radi-

cally as when it attacks other organs. 4. When the patient's condition permits we should operate on fistulæ irrespective of kind. 5. We should not decline operations in persons suffering from chronic phthisis, nor in those who give a family history of tuberculosis. 6. Patients operated on for tubercular fistulæ complicated by phthisis and patients who are non-tuberculous but suffer from some involvement of the lung, and who rapidly decline and die after the operation, do so from an inflammation of the lungs induced by the anesthetic, especially ether. Such accidents have not followed operations in my practice where local anesthesia was employed. 7. Lastly, I believe we are justified in discarding the teachings of writers who teach that the cure of fistulæ will result in the development of phthisis."

124. **Typhoid Fever.**—Robin describes his method of preparing active cultures of typhoid germs for the Widal test and for Ehrlich's diazo-reaction. We have not space to reproduce the details here.

136. **Molluscum Contagiosum.**—From a careful study of the growths in this condition, which includes examination of several hundred sections in tumors, and of the literature, White and Robey conclude that no one has ever demonstrated any parasitic body in the growth and that the change is not a colloid or hyalin degeneration, but rather an extraordinary metamorphosis of rete cells into keratin.

137. **Malignant Tumors.**—From the results of culture experiments which are tabulated Richardson confirms the finding of his previous experiments that it was impossible to cultivate from the tissues and fluids of malignant new-growths anything which can be regarded as a specific infecting organism.

139. **Relation of Blastomycetes to Cancer.**—From experiments reported and a study of the results obtained by others, Nichols finds that certain blastomycetes can live and multiply in human and animal tissues, produce local lesions and metastases in the internal organs, that is, they are pathogenic. The lesions produced in animals by spontaneous infection are acute inflammations and abscesses or nodules of peculiar granulation tissue. This proliferation of epidermis is not analogous to the proliferation of epithelium seen in cancers, since no epithelial metastases occur. Blastomycosis in human tissues is rare. The lesions produced in animals are, with the exception of Sanfelice's "successful" cases, inflammations or nodules of peculiar granulation tissue. He describes Sanfelice's results as being in direct opposition to other writers and logically explained by coincidences and not as results. Blastomycetes, as a rule, cause marked proliferation of tissue and little infiltration with leucocytes; their toxic powers are small. They primarily extend along lymphatic clefts and vessels, rarely in human beings, and more often in spontaneously infected animals blastomycetes may be taken into the blood vessels, carried through the body, and produce a general infection and metastases. The secondary nodules have the same general character as the ordinary ones. The morphology of so-called "cancer bodies" is not identical with that of the blastomycetes, and they are not constantly present in human malignant tumors and cancers. Even if they do occur in human cancers they are not in such numbers and in such a relation to the anatomic lesion as to justify the belief that they are the cause of the disease. All the facts lead to the ultimate conclusion that there is no evidence that blastomycetes have anything to do with the production of human cancers.

141. **Cancer.**—Nichols offers the following summary as the result of the lines of work pursued during the past year under the direction of the Cancer Commission: "1. The lesion produced by the coccidium oviforme is essentially a process of chronic inflammation and is not analogous to the lesion seen in cancer. 2. The lesion in molluscum contagiosum is characterized by certain changes in the epidermis, is not due to the action of a protozoön and is not analogous to cancer. 3. The so-called "blastomycetes" (saccharomycetes) of Sanfelice and Plimmer are torulæ. 4. The lesions produced by these blastomycetes are essentially nodules of peculiar granulation tissue and not cancerous, not in any sense true tumors. 5. Blastomycetes are not constantly present in human cancers

6. The peculiar bodies seen in the protoplasm of cancer cells are not parasites, nor the cause of the lesions, but probably are, in part at least, atypical stages of the process of secretion by glandular epithelium."

FOREIGN.

Titles marked with an asterisk (*) are abstracted below.

British Medical Journal (London), April 19.

- 1 A Series of Cases of External Operations on the Larynx. A. Marmaduke Sheld.
- 2 *Some Observations on Thirty-five Cases of Chronic Suppuration of the Maxillary Antrum. Herbert Tilley.
- 3 *The Treatment by Asch's Operation of Deviations of the Nasal Septum. Eugene S. Yonge.
- 4 *The Influence of Nasal and Nasopharyngeal Obstruction upon the Development of the Teeth and Palate. A. L. Whitehead.
- 5 Foreign Body in the Esophagus. John McKenzie.
- 6 *The Causation of Death During the Administration of Chloroform. E. H. Embley.

The Lancet (London), April 19.

- 7 Some Abnormal Psychic Conditions in Children. George F. Still.
- 8 *The Comprehensive Study of Thoracic Phthisis. F. T. Roberts.
- 9 *Organotherapy. Arthur T. Davies.
- 10 A Case of Purulent Peritonitis Associated with Empyema; Recovery. Henry Ashby.
- 11 Two Cases of Paralysis Agitans in the Same Family, in Which Improvement Followed the Administration of Hyoscin. Judson S. Bury.
- 12 *On Cardiac Inadequacy. Alexander Morison.
- 13* Pyrexia of Gastrointestinal Origin During the Puerperium. Ethel M. N. Williams.
- 14 Primary Carcinoma of the Ampulla of Vater. F. De Havilland Hall.

Glasgow Medical Journal, April.

- 15 *The Antitoxin Treatment of Diphtheria in the City of Glasgow Fever Hospital, Belvidere, During Six and a Half Years. John Brownlee.
- 16 Some Cases from Rothesay Cottage Hospital. J. N. Marshall.
- 17 *On Obstruction of the Coronary Arteries. John M. Cowan.
- 18 Surgical Diseases of the Kidney: Their General Symptomatology and Physical Diagnosis, with Illustrative Cases. (Continued.) David Newman.

Australasian Medical Gazette (Sydney, N. S. W.), March 20.

- 19 Address in Medicine, Intercolonial Medical Congress. James Jamieson.
- 20 Address in Obstetrics and Gynecology. Ralph Worrall.
- 21 Address in Surgery. Louis E. Barnett.
- 22 Address in Public Health. Thomas Cherry.
- 23 Notes on Intussusception, with a Case in Which Three Inches of Bowel Were Removed for Gangrene—Recovery. Eneas J. McDonnell.
- 24 Trichina Spiralis. E. Angus Johnson.
- 25 The Treatment of Middle-Ear Suppuration. Richard Arthur.
- 26 The Light Treatment of Staphylococcus Pyogenes Aureus. J. Cappie Shand.

Praktichesky Vratch (St. Petersburg), i, 7 to 12.

- 27 *Pleuritis from Malignant Disease. N. D. Titoff (Moscow)—"O rakovykh pleuritakh."
- 28 Two Cases of Defective Development of Uterus. I. E. Tchernomordik.
- 29 Treatment of Acute Poisoning by Opiates. Velyamovitch.
- 30 Surgery in Country Practice. Archangelskaya.
- 31 Cystoscopy and Catheterization as Differentiating Measures. I. E. Hagen-Thorn.
- 32 Asthma Dyspepticum. M. Einhorn (New York).

Annales d'Hygiene Publique (Paris), xlvii, 1 to 4.

- 33 *Diseases and Accidents Which May Simulate Poisoning. P. Brouardel (Paris).
- 34 A Few Instances of Medical Responsibility. M. Maxwell.
- 35 Industrial Accidents in Germany. E. Galebowski.
- 36 Mental Forms of Alcoholic Intoxication. L. Mayet.
- 37 Canned Meats. Report of Committee.
- 38 Amnesia from Medicolegal Standpoint. P. Garnier.
- 39 Alcoholism in Morocco. L. Raynaud.
- 40 The Family of Consumptives. E. Mosny.
- 41 Plague Bacilli Found in Mosquito in Sick Room. La Bonnardière.
- 42 Text of New Public Health Law in France.
- 43 Rations for Cavalry and Infantry. A. Ballard.

Annales de l'Inst. Pasteur (Paris), March.

- 44 Streptococcus Toxin. A. Marmorek (Paris).
- 45 Unity of Streptococci Pathogenic for Man. Ibid.
- 46 Study of Mushrooms. G. Bertrand—"Sur le bleuissement de certains champignons du genre boletus."
- 47 Malaria in Algeria. A. Billet.
- 48 Study of Utilization of the Ternary Alliments by Vegetables and Microbes. P. Maze.

Bulletin de l'Acad. de Med. (Paris), April 8.

- 49 Fine Effect of Injections of Antistreptococcus Serum in Three Cases of Smallpox. Schoull (Tunis).
- 50 *Hospitals and Universities in the U. S. P. Kahn.
- 51 *Goat's Milk for Infant Feeding. Barbellion (Paris).
- 52 *Resolutions on Preventive Serotherapy of Diphtheria.

Progres Medical (Paris), March 29 and April 5.

- 53 Transverse, Supramalleolar Fracture of the Tibia. P. Laurens.

64 *New Process of Dental Analgesia by Means of Electricity. Register and H. Didsbury.

65 *Alimentary Treatment of Glycosuria, Albuminuria and Hemorrhages with Gelatin. M. Lafont.

66 *The Question of Parasyphilis. Leredde.

Revue Mens. Mal. de l'Enfance (Paris), March.

67 *Medicated Milks—Iodized Milk. M. Flamini (Rome).

68 Case of Lymphocythemia. Rocaz.—"Lymphocythémie aigue avec hypertrophie du thymus chez un enfant de quatre ans." April.

69 Non-Suppurative Meningitis. Hutinel.—"Meningisme, Ménin-gites séreuses."

70 *Harmlessness of Epidural Injections in Children. F. Cathelin.

71 Rare Forms of Tetanus in Children. S. A. Roger.

Revue de Chirurgie (Paris), April.

72 *Posterior Gastro-Enterostomy. F. Terrier.

73 *Thoracoplasty for Chronic Purulent Pleurisy. A. Mignon.

74 Existence in the Horse of an Affection of the Bones Analogous to Paget's Disease. L. Dor (Lyons).

75 *Congenital Luxation of Patella. G. Zesas (Berne).

Allg. Med. Cent.-Ztg. (Berlin), March 26 to April 12.

76 Action of Heroin. I. I. Grinewitsch.

77 Urethral Discharges. A. Seelig.—"Ueber Harnröhrenaus-flüsse."

78 *Aspiration of Perimetritic, Paraneuritic and Peritonitic Exu-dates by the Fallopian Tubes. E. Below.

79 Chinosol. F. Klipp.

80 Luxation of the Humerus Complicated by Tearing Off of the Greater Tuberosity. Illustrated. G. I. Turner.

81 Disturbances in Evacuation of Urine. A. Seelig.—"Ueber Störungen der Harnentleerung."

82 Review of Recent Works on Path. and Ther. of Affections of the Cecum.

83 Breeding Healthy Human Beings. Heddaeus.

Beitraege zur Klin. Chir. (Tuebingen), xxxiii, 1.

84 *Caput Obstipum. F. Voicker (Heidelberg).—"Das Cap. ob.—eine intrauterine Belastungsdeformität."

85 Gas Phlegmon in Man. A. Stolz (Strassburg).

86 Case of Gangrenous Umbilical Hernia Cured by Resection of Liver. H. Rothe (Breslau).

87 *Incarcerated Hernia. Ibid.—"Beitrag zur Statistik der inc. Hernien."

88 *Solidity of Cicatrix After Laparotomies. R. Pichler (Bres-lau).—"Die Festigkeit der Bauchdeckennarbe nach Lap. bei der primären Naht und bei der Mikulicz-Drainage."

89 Remote Results of Langenbeck's Operation for Hemorrhoids. L. Talke (Königsberg).

90 Wounds from Firearms. P. Linser.—"Ueber die in der Tueb-inger Chir. Klinik, 1891-1901, beobachteten Schussverletz-ungen."

Centralblatt f. Chirurgie (Leipzig), April 5 and 19.

91 *Very Early Symptom of Pleuritis with Effusion. B. Prze-walski (Charkow).

92 *Improved Method of Resecting the Knee. W. Sykow (Mos-cow).—"Zur Frage der Kniegelenkresektion."

93 *Manual Reduction of Luxations Without Narcosis. F. Roloff (Halle).—"Man. Reposition von Lux. ohne Nark."

Deutsche Med. Wochenschrift (Leipzig), April 10.

94 *Diagnosis of Pentosuria. M. Bial (Kissingen).

95 *Granular Degeneration of Red Corpuscles. W. Loewenthal.

96 *Chronic Appendicitis. R. Lenzmann (Charlottenburg).—"Weitere Beob. ueber Appendicitis chron."

97 Congenital Fissure of the Neck of the Femur. C. Helbing.—"Ueber cong. Schenkelhalsfissur."

98 *Treatment of Ulcus Ventriculi. C. Pariser (Homburg).

99 Extragenital Syphilis in Vienna. Neumann.

100 Extensive Varices on Trunk Consecutive to Pneumonia. L. Lipman-Wulf.

Muenchener Med. Wochenschrift, April 8.

101 *The Bone Marrow in Infectious Diseases. E. Fraenkel (Ham-burg).

102 Study of Rhodan Combinations. G. Treupel (Freiburg i. B.).—"Untersuchungen ueber Rhodanverbindungen."

103 Subluxations in Congenital Dislocation of the Hip-Joint. W. Walther (Hof).—"Ueber Sublux. bei der angeb. Hufter."

104 *Rinsing the Stomach with Nitrate of Silver Solutions. F. Ehrlich (Stettin).—"Ausspülungen des Magens mit Höllen-steinlösung-ein therapeutisch und diagnostisch wirksames Cholagogum."

105 *Production of Nerve Stimulants by the Organism. Adler (Breslau).—"Darstellung von Energetics durch den Org."

106 Anomalies in Gait and Attitude in Hysteria. J. Riedinger.

107 Primula Obconica as Cause of Disease. Dreyer (Cologne).

108 Changes in Color of Hair. W. G. Weinberg (Dortmund).

109 Modern Sanatoria for Infants. F. Sieger (Strassburg).—"Mod. Säuglingsheilstätte u. ihre Bedeutung f. d. Aerzte."

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110 Vaginal Tuberculosis. C. Springer (Prague).—"Zur Lehre von der Genese der Vag.-Tub."

111 Branchiogenic Carcinoma. G. Joannovics (Vienna).—"Ueber branch. Carc. und auf embryonale anlage zurückzuführende cystische Tumoren des Halses."

112 *Bacteriemia. R. Kretz (Vienna).—"Ueber Bacteriämie."

113 Ankylosis of Spine. F. Reuter (Graz).

114 Case of Perforation of Bladder by Papillomatous Excrescence from a Dermoid Cyst in Left Ovary. C. Muench (Geneva).

xxiii, 2.

115 Glycosuria in the Insane. E. Raimann (Vienna).

116 Urine of Human Fetus. T. Panzer (Vienna).

107 Akataphasia as Result of Focal Affection. A. Pick (Prague).—"Ueber Agrammatismus als Folge von Herderkr."

108 *Clin.-Therap. Study of Tetanus. T. Pfeiffer (Graz).

109 Acetonuria in Typhoid Fever. R. Bernert (Vienna).—"Ueber Acetonurie bei Typhus Abdominalis."

L'Egypte Medical (Alexandria), January.

110 Colpotomy in Pelvic Suppuration. J. Roger (Alexandria).—"De la colp. dans les sup. pelv."

111 *Artificial Post-Operative Lagophthalmos in Egypt. A. Os-borne.—"Le lag. artificiel post-op. en Egypte."

112 Note on a Septicemic Disease of Certain Animals in Zoological Gardens of Cairo. W. St. C. Symmers.

February.

113 Hysterectomy in Puerperal Infection. Mauclair (Paris).

114 *Surgical Aspects of Bilharzia of the Rectum. F. Madden (Cairo).

115 Serotherapy of Streptococcus Affections. Voronoff (Cairo).—"Sérothér. des aff. strept."

March.

116 Modern Lithotrity. Kallionzis (Athens).—"La lithotritie mod."

117 Mercurial Injections in Syphilis. Trekaki (Alexandria).—"Les inj. merc. dans la syph."

118 Modified Thoracoplasty for Liver Abscess Perforated into Bronchus. Goebel.—"Modif. du procédé de Schede-Est-lander."

Prager Med. Wochenschrift, March 13 to April 10.

119 Electrotherm Compresses. E. Lindemann (Berlin).—"Elek-trisch erwärmte Umschläge."

120 Explanation of Irregular Pulse. H. E. Hering. (Commenced in No. 1.)

121 Bacteriologic Diagnosis of Diphtheria. Salus and Others.

122 Treatment of Articular Rheumatism with Electric Light Ap-paratus. E. Lindemann.—"Behandlung mit Glüh- und Bogenlichtapp."

123 (Case Reports.) Lues Cerebri. Gruenberger.—Hereditary Ataxia. Stein.

2. Antral Disease.—After first describing the anatomy and variations of the maxillary antrum, Tilley passes to its affections. His experience leads him to believe that dental caries is by far the most frequent cause of chronic antral empyema. Although the crown of the tooth may seem healthy, there may be disease at its roots, carrying infection to the antrum. Abscess may be present between the roots of a tooth which possesses a healthy crown. The supposition that the dental trouble is secondary is hardly reconcilable with the histories of the cases. In some of his cases on which this paper was based, the ethmoidal, sphenoidal and frontal sinuses were also involved. The symptoms are diverse and the frequency of their variation is one of the striking features of chronic antral suppuration. A straightforward case manifests itself by purulent nasal discharge, the patient only being conscious of an offensive smell. There may be also a congested or polypoid state brought on in the nasal mucosa and various degrees of nasal obstruction. During sleep the discharge tends to pass back into the pharynx, producing, on awakening, hawking and sniffing in the morning. Still more serious symptoms that call the patient to seek relief are headache and neuralgia—which may be intense; and the gastric symptoms due to gastritis from swallowing septic matter. Pharyngeal and laryngeal irritation may occasionally be present, and in less frequent cases aural symptoms also occur. In one of his patients the symptom that led him to seek relief was the occasional discharge of blood into the mouth from the back of the nose. Taken altogether, he believes that antral suppuration is more common than is generally assumed and that many cases are overlooked. In making the prognosis, we must consider the original infections. The purely dental cases are the most hopeful. The period of time which has elapsed and the consequent degenerative changes, the general health of the patient, the persistence and regularity with which he will follow the prescribed treatment are also to be considered in the prognosis. If, with the symptoms mentioned, purulent discharge is seen in the middle meatus which accumulates after removal when the head has been held for a few minutes so as to drain the ostium and on transillumination the suspected antrum is less translucent than its fellow, the diagnosis is aided. Finally, intranasal exploration and irrigation of the antrum will give conclusive proof. In using transillumination we should remember that it is the infra-orbital trans-lucencies rather than those of the cheek which must be com-pared. The opacity is due to a thickened mucous membrane of the antrum and not to an accumulated discharge and there is the possibility of mistakes from a tooth plate left in the

mouth. Intense opacity in an adult extending from the orbit to the lower part of the cheek, and associated with pain and distension of the cheek, should suggest malignant disease. The treatment comprises two methods: the first is by drainage and irrigation through the opening in the alveolus, kept patent by a silver tube. The opening is generally made through the socket occupied by the first molar or the second bicuspid. The tubes should be removed twice daily, and some simple antiseptic lotion like boracic solution or Condy's fluid injected by a suitable syringe. The best form of the latter is a modification of Higginson's onema syringe. These injections may be less frequent as the discharge diminishes; even after the interval of a week, if no discharge returns with the lotion, the tube may be removed and the case considered cured. Occasionally the hemorrhage following alveolar puncture may be a little troublesome; neuralgia has been caused by too large a tube. In 34 of the 35 patients this was the method of treatment. In but one case was the second method employed, namely, the radical operation or exposure of the anterior surface of the antrum through an incision made along the gingivo-labial fold extending from the level of the first molar to the canine tooth, and removal of a portion of the antral wall the size of a sixpence followed by curetting of the diseased mucous membrane lining the sinus. A counter-opening is made into the inferior meatus of the nose, which should be as large as the other. After thorough disinfection of the parts the sinus is plugged with a strip of antiseptic gauze, the proximal end of which is passed through the naso-antral opening and cut off level with the nostril. The bucco-antral wound is united by fine sutures, or allowed to close by granulation as rapidly as possible. The packing is removed from the nose in forty-eight hours and irrigation is kept up through the naso-antral opening for some three or four weeks, by which time the discharge should have ceased. He believes the alveolar method should be advised in the first instance because of its simplicity, drainage from the most dependent part, and the ease and shortness of the operation. The only exception he would make would be with a patient whose circumstances demand as short a treatment as possible and in whom one found the nasal mucosa in the middle meatal region in such a state of advanced polypoid degeneration as rendered it practically certain that a similar condition was present in the antrum where the only chance for success would be careful curetting followed by free drainage. He mentions the infrequency of this operation because it has been recommended as a general operation by other authors.

3. Asch's Operation.—Yonge reports his experience with this method and finds that it is one of considerable value, which runs the risk, however, of being very imperfectly carried out. The operation should be very carefully performed and the surgeon satisfied that recalcitrant segments are thoroughly broken at their bases. The patient must not be allowed to look after himself, but be carefully watched for at least ten days and the surgeon should make sure that the septum is solid in its new position.

4. Palatal Deformities.—Whitehead's article reviews the theories of the agency of nasal and pharyngeal disease in the production of palatal deformities and holds that no single one is sufficient to fully explain their mode of production. It is certain, however, that interference with nasal respiration is capable of producing serious and extensive degeneration of the teeth and jaws, and that, by the restoration of nasal breathing, this disfigurement of the maxilla can be prevented, and, if seen at an early stage, alleviated, the constant stream of air developing and expanding the upper jaw.

6. Chloroform.—This final article by Embley reviews the cause of the fall of blood pressure in chloroform administration. He finds that the drug causes a diminution in the vascular tone of arterioles. This is most obvious when it is practically kept out of the brain. The central vasomotor system is stimulated, at any rate for a time, by chloroform and the cause of the fall of blood pressure from the administration of chloroform is paralysis of the muscle cells of the heart and of the arterioles (provisional). The fall may be further augmented by slowing of the heart's rate, or suddenly brought to zero by vagus in-

hibition. The relation of asphyxia to syncope and the causes of respiratory failure are also investigated and the following conclusions deduced: Failure of respiration is mainly due to fall in blood pressure. With a good blood pressure, failure of respiration by inhalation of chloroform is practically impossible. Restoration of failed respiration is dependent upon restoration of blood pressure. Failure of respiration occurring in the induction or early period of anesthesia happens as frequently after as it does before the heart stops. The effects of chloroform vapor breath upon the respiration are summarized as follows: "1. The blood of the lungs, by once traversing the pulmonary capillaries, does not attain to nearly the same vapor tension of chloroform as that of the air inspired. 2. The vapor tension of chloroform in the arteries is the important practical question. As this rises and falls with the volume of chloroformed air inspired, also with variation in vapor tension of the chloroform in the air, it follows that the effects of chloroform upon the animal will vary with the depth and rate of the respirations, just as much as with the percentage strength of chloroform vapor in the air administered. 3. Chloroform in arterial blood is largely discharged into the tissues at first—that is, the vapor tension of chloroform in the venous blood is equal to that of the tissues. As the arteries continue to pour more chloroform in, the vapor tension of chloroform in the tissues and venous blood would gradually approximate that of the arteries. 4. The range of percentage of chloroform vapor in the air inspired, for inducing chloroform anesthesia in the same period of time in different dogs, varies between 0.8 per cent. and 2.5 per cent. 5. Two per cent. or upwards of chloroform vapor in the air inhaled is liable to bring on dangerous vagus inhibition." The general conclusions, which are briefly discussed, are that the heart muscle is very sensitive to the poisonous effects of chloroform. Chloroform raises the excitability of the vagus mechanism, particularly in the early part of the administration. The central medullary vasomotor system is stimulated, at any rate for a time, by chloroform and the failure of respiration in inhalation experiments is mainly due to fall in blood pressure. With a good blood pressure such fall is impossible and restoration of respiration is dependent upon restoration of blood pressure. The practical application of these results is not here considered, but one obvious moral is, use only weak vapor of chloroform (less than 1 per cent.) in the early stages, until the initial increased excitability of the vagus mechanism has given place to diminished excitability; in other words, take time in putting the patient under the influence of chloroform.

8. Thoracic Phthisis.—Roberts' third lecture reviews the various modes of onset, symptomatology, method of examination, both physical and general, including sputum examinations, tuberculin tests, agglutination tests, Roentgen rays, etc. The details are too numerous to be here given. He submits the following general propositions in regard to thoracic phthisis: "1. The natural tendency of phthisical mischief involving the lung, especially if definitely tubercular, is to be progressive, and even an early and limited lesion gives cause for anxiety with regard to the future. 2. There is no foundation whatever for the supposed 'three stages' of the complaint from a clinical point of view, corresponding to the pathologic states of consolidation, softening and cavity. This is a popular error which the profession should do its utmost to suppress. 3. In not a few cases the progress of thoracic phthisis is very insidious, without any prominent local symptoms; this may happen even in acute and rapid cases, as well as in those of a chronic type. 4. It is very remarkable how, in certain acute cases of pulmonary phthisis, if not too advanced, arrest of the disease takes place, sometimes ending in a practical cure, especially if the patient can be placed under favorable conditions. In other instances, after rapid progress, it settled down into a chronic and limited form of phthisis. Acute pleuritic cases of definitely tuberculous nature are, as a rule, very unsatisfactory in their progress, but some striking exceptions are met with: 5. While recognizing the tendency of phthisical lesions to advance progressively, we must always be fully alive to the wonderful efforts of nature to

propose and withstand them, to check their progress and to repair the damage which they have caused; even when the morbid changes are definite, extensive and of a destructive nature. The more chronic the case, the more likely are these results to happen. At the same time unaffected portions of pulmonary tissue may become developed and utilized for respiratory purposes, a development which it should be our business to encourage and to help. 6. It is extraordinary sometimes to note the combinations of chronic conditions affecting the chest with which patients may not only live but even get on fairly comfortably, especially when their circumstances and surroundings are satisfactory and they are prepared to exercise moderate care. As to cavities which are generally regarded with such terror, there are thousands upon thousands of persons who go about with these lesions, many of whom do excellent work, public as well as private, and all must be familiar with such cases. 7. Phthisical cases are always liable to variations in their progress, improvement or even apparent arrest of the disease taking place, followed by exacerbation and further activity. A considerable number of cases of winter cough are really of a phthisical nature. However quiescent a case may be, or even after a practical cure, the mischief is liable to start afresh, though it may be after a long interval; this is not an uncommon experience after a supposed cure by the open-air treatment. Accidental complications, sudden or acute, not uncommonly interrupt the course of events, being either serious for the time, but ultimately recovered from, or leading to an unexpected fatal termination very speedily or within a short period. 8. We must always be prepared for striking changes in the clinical aspect and phenomena of cases of thoracic phthisis during their progress, not only local, but also in relation to the various remote complications which may supervene. Hence a case often entirely alters in its features before the end comes. The final scene varies considerably in its characters, and may be very distressing; but in many instances the end is calm and peaceful, while the patient is, as is well known, generally buoyed up with hope even to the last. Sudden syncope is sometimes the immediate cause of death. Acute mania may supervene toward the close of life in chronic phthisis. 9. Another important point to be borne in mind is that sometimes a phthisical patient lingers on indefinitely when apparently almost moribund, especially when kept alive by devoted nursing and care. And further, an individual in advanced consumption who appears to be rapidly approaching the end occasionally rallies and picks up in a wonderful way, living for a long time afterwards, and, it may be, improving considerably. I remember several cases of this kind brought to the Brompton Hospital, their friends thinking that they had relieved themselves of all further responsibility, but the patients were afterward returned to their hands vastly improved, sometimes much to their disappointment." He suggests that we should be very cautious in the prognosis of these cases, especially as regards the future of the disease, as affecting the communities as well as individual cases. The "optimistic platitudes" now widely and dogmatically expressed are, in his opinion, doing serious mischief in various ways. Nevertheless, we should recognize the practical findings which have been made in the treatment, and the real diminution in the prevalence and mortality of the disease. He would warn the practitioner against anything like a definite opinion as to the duration of the disease.

9. **Organotherapy.**—Davies has reviewed the whole subject of organotherapy, giving the different extracts, etc., and the findings as to their therapeutic value.

12. **Cardiac Inadequacy.**—Morison reports cases of cardiac inadequacy of a heart small though hypertrophied, in which the defect under special conditions was, in part at least, the cause of the general decay and death of the organism. He thinks that, bearing in mind the underlying inadequacy or adequacy of cardiac action, we shall find the key to some of those circumstances of success or failure in the management of diseases and disorders of the heart which so frequently afford food for thought, and explain to some extent the secondary phenomena of cardiac failure.

15. **Diphtheria Antitoxin.**—The results of the antitoxin treatment in the Glasgow City Hospital are given here in tabulated form and discussed. The mortality at all ages has been greatly lowered, but Brownlee notices especially that the improvement has become more marked as the age period increases from 1 to 10 years. He also gives comparative tables of mortality in other localities in the pre- and post-antitoxin periods showing a similar reduction.

17. **Obstruction of the Coronary Arteries.**—The résumé of Cowan's article is given as follows: "1. The coronary arteries may be obstructed (a) at their origin; (b) in their course. 2. If the obstruction involves a main artery and the closure is gradual, compensatory enlargement of the other artery may prevent damage to the cardiac muscle, but perfect compensation is rare, and necrosis or fibroid change commonly ensues; if, however, the closure is rapid, sudden death is the usual result. 3. If the obstruction involves a small artery, no compensatory arrangement is possible, and the nutrition of the cardiac muscle will suffer, whether the closure is rapid or gradual. 4. (a) If the obstruction is partial, some of the muscle may degenerate (granular or fatty degeneration) and may ultimately disappear and be replaced by fibrous tissue. (b) If the obstruction is complete, some of the muscle will become necrosed (infarct) and the patient may die from slow cardiac failure or from rupture of the heart; if, however, the infarct is of small size, healing may take place, and a fibroid scar be ultimately formed."

27. **Malignant Pleuritis.**—Titoff describes four cases of cancerous pleuritis. The special points in diagnosing were the age—all of his patients were over 40 years old—the persisting pains on the same side as the lesion, the rapid reaccumulation of the exudate after puncture, the gradual transformation of the exudate from a serous to a sero-sanguine and hemorrhagic fluid, and most significant of all, metastases in the supra-clavicular glands. This latter sign may not appear until very late. Other points are the discovery of bunches of cancer cells in the exudate. They were frequently found in his cases. The persistence of the pain is almost pathognomonic. In tubercular or rheumatic pleuritis the pains and dyspnea may be severe, but they always subside after puncture. In these cases the amount of the effusion remained about the same even after puncture. In none of his cases was the cancer complicated by pulmonary tuberculosis. In one patient the malignant character of the pleuritis was diagnosed at the second puncture, the fifth day after the patient had been received. It was founded on the rapid reassembling of the fluid after puncture, the slight fever and the absence of articular lesions and of tubercular bacilli in the sputa. The patient was well nourished and her appetite had been good, with no dyspeptic troubles. This case illustrates the difficulty of tracing a metastatic cancer to its primary focus. The autopsy disclosed an unsuspected scirrhous of the stomach involving one-third of the organ. About the only measures that afford relief are morphin or compresses of a 10 per cent. alcoholic solution of menthol. Puncture gives no material or permanent benefit.

33. **Diseases and Accidents which May Simulate Poisoning.**—Brouardel's extensive experience contains many remarkable instances of sudden death from auto-intoxication or from rupture of a viscus which deceptively simulated the symptoms of acute poisoning. He has known albuminuria and diabetes to run a chronic course unsuspected by the subject. A crisis resulting in death in a few hours may be the first revelation of the evil. Sometimes the toxic accidents of an incipient infectious disease are so violent that they mask the more familiar symptoms and suggest poisoning. Disturbance in the circulation in the intestines from an internal strangulation, hernia or impacted gallstone or fecal scybala may induce sudden fatal symptoms. Socquet found 800 gm. of impacted feces in one such case and 8 kgm. in another. Brouardel has himself observed 5 cases of unsuspected cylindrical stricture and retention of feces which caused sudden death, 1 of tubercular peritonitis and 1 of a sarcoma of the mesenteric glands. The examining physician should look for and exclude an over-production of

alkaloids or interference with their elimination before assuming exogenous poisoning. He cautions always to think of the kidney in cases of sudden death. The inability to eliminate the toxins elaborated after an unusually hearty meal or alcoholic excess is the cause of many deaths under the circumstances which suggest poisoning. In a fourth or third of all cases of sudden death no lesion can be discovered to which it can be referred.

50. Hospitals and Universities in the United States.—Kahn has been visiting the hospitals and universities of this country on a "mission gratuite" from the French Department of Public Instruction. He has only words of the highest praise for the hospitals which receive pay patients and have a certain number of free beds. But he calls our public hospitals "rudimentary." He mentions Bellevue, New York, as a type, and observes that such institutions have less financial support than the others and are frequently dirty. He deplors the fact that France has nothing to compare with the admirable system of trained nurses here.

51. Goat's Milk.—Barbellion has for years been an ardent advocate of the introduction of goat's milk for infant and invalid diet. He describes tests which show that the coagulum is soft and very soluble, like that of human and asses' milk, while the coagulum from cow's milk is much more compact and difficult to digest. Comparative tests with gasterin showed that while cow's milk was scarcely affected by it during twenty hours, human, goat and asses' milk was completely digested. He reports a number of cases showing the remarkable manner in which infants thrive on goat's milk. The Académie voted in favor of his conclusions as to the advisability of establishing numerous goat milk depots throughout the city. One of the principal advantages of the goat for this purpose is that it is refractory to tuberculosis.

52. Resolutions on Preventive Serotherapy of Diphtheria.—The conclusions deduced from communications by Netter and others, reviewed in *THE JOURNAL* of April 19, p. 1045, were voted as resolutions by the Académie. Preventive injections were recommended as harmless and effective, and indicated in families and especially in boarding schools, hospitals, etc., when a case of diphtheria has developed. Even in the absence of a case of diphtheria, the preventive injections may be indicated in measles and scarlet fever wards. The preventive action is less positive in cases of measles. The dose must be larger and must be repeated more frequently. Preventive injections do not by any means enable one to dispense with disinfection and isolation. They merely render these measures easier and more effectual.

54. New Process of Dental Analgesia by Electricity.—Regnier, chief of the laboratory of electrotherapy at the Charité, Paris, and Didsbury, dentist to the hospitals, announce that the means of obtaining the analgesia of a living tooth has been discovered. It is the application of the high frequency current to the gum and tooth for three to five or possibly eight minutes. They use a current of 150 to 300 milliamperes with electrodes of "stent" lined with tin foil. The gum must first be washed with permanganate and alcohol and the chair be entirely free from any metal parts. Teeth can be extracted or scraped without pain during the analgesia thus induced.

55. Alimentary Gelatin Treatment of Glycosuria, Albuminuria and Hemorrhages.—Laffont and Lombard have already proclaimed their opinion that albuminuria, glycosuria and capillary hemorrhages all owe their origin to a single factor, some modification of the blood, which can be revealed by cryosecopy. Normal blood does not injure the liver, kidneys, etc., but if the composition of the blood becomes altered, the scene changes, and their experience has shown that if the blood can be restored to its normal composition, the glycosuria, albuminuria or capillary hemorrhages observed soon vanish. Whenever some nutritional disorder modifies the composition of the blood and its cryosecopic properties, the physician and the patient are warned of the change by albuminuria, glycosuria or a hemorrhage. Whether this syndrome is accompanied by

an anatomic lesion or not, the condition is reparable if the cause which has produced and is maintaining it can be suppressed. Gelatin is able to accomplish this if taken in the amount of 15 gm. a day. It is a harmless means of treatment and there are no contra-indications. None of their numerous patients objected to the gelatin or found their digestion disturbed. It can be added to soups and other dishes or eaten as jelly. In mild cases of diabetes the cure is the rule in ten to fifteen days. In all cases, the proportion of sugar to the blood decreases by about 10 gm. The length of treatment required in albuminuria is more variable. It should be kept up long after the subsidence of the symptoms. In case of hemorrhages from the uterus, the gelatin should be continued longer than for any other symptom, reducing it gradually to the ten days preceding the menses.

56. The Question of Parasyphilis.—This term—coined to denote affections of syphilitic origin but not of syphilitic nature—is denounced by Leredde, who thinks that it obscures the proper conception and treatment. Tapes and general paralysis can be referred to syphilitic antecedents in fully 50 per cent. of all cases, but the touchstone is the fact of the curability by intensive specific treatment. The half-hearted treatment instituted by most practitioners is of course ineffective, but the cure is almost certain when treated in the early stages by an injection of calomel every six weeks, with occasional intermissions of one or two months, and this treatment continued for three years. The longer the delay before instituting these vigorous measures, the greater the liability to secondary lesions and degenerations.

57. Organic Medicated Milks.—Flamini reviews the various attempts to produce a medicated milk by administering a drug to a cow or other milk-giving animal. The chief objections have been the uncertainty of the dose and the impairment of the health of the animal. Potassium or sodium iodid have always been the drugs experimented with, administered by the mouth. Flamini has been very successful in his experiments with subcutaneous or endomuscular injections of a 5 per cent. oily solution of metallic iodine. The oily solution holds more of the iodine than an aqueous, while it is less irritating, and the elimination of the iodine in the urine proceeds much more gradually. He demonstrated that the drug was eliminated in the milk and in the urine, with twice as large a proportion in the urine. After the rabbit or goat was once saturated with the iodine, the elimination could be kept practically constant by injection of small doses at regular intervals of a few days. With these small doses the maximum of iodine in the milk was .12 gm. to the liter. A large proportion of the iodine in the milk is in combination with albuminoids, but more than half is in an organic combination. The composition of the milk does not seem to be altered by this addition of the iodine and the health of the animal does not suffer. His tests were made with rabbits and goats.

60. Harmlessness of Epidural Injections in Children.—Cathelin's technic for epidural injections of cocaine, etc., has been already described in *THE JOURNAL*, xxxvii, p. 150, 793, etc. They have been found extremely useful in the treatment of sciatica, lumbago, neuralgia of trunk and viscera, tabic crises, incontinence of urine, lead colic, etc. He has applied them on eleven children between 7 and 15 years of age. He injected 5 to 15 c.c. of physiologic serum or a .5 per cent. solution of cocaine. One child received as much as 19 cg. of cocaine without the shadow of any inconveniences. He asserts that children bear these epidural injections perfectly and they can be used without fear or danger. Owing to the extensive network of intraspinal veins absorption is remarkably rapid, but these epidural injections are chiefly valuable as an anodyne and as a practical method. The child is placed in the Sims' position and the postero-inferior orifice of the sacral canal is easily found. It is comparatively larger in children than in adults.

62. Posterior Gastro-Enterostomy.—Terrier's mortality in 22 cases, in which he performed Hacker's transmeso-colic gastro-enterostomy, has been 4.54 per cent. Hacker has reported a mortality of 36.8 per cent., Mehler 65.2 and Haberkant 42.5

per cent. in 49 operations. Terrier ascribes his success in large measure to his practice of lavage of the stomach at the first indications of regurgitation, vomiting and fever. He describes his cases in detail and calls attention to the extremely grave condition of 7 patients who yet made an uneventful recovery. He thinks that we should discriminate between those lesions which oppose a mechanical obstacle to the gastric functions and those which determine a kind of general infection. Every stricture of the pylorus, organic or not, may rapidly entail an extremely serious condition. Alimentation becomes difficult or impossible and intervention is indicated regardless of the patient's serious condition. But in case of lesions which act by intoxication and generalization, whose development is almost fatally slow, a serious general condition may contra-indicate intervention. Even under these circumstances, however, the intervention may achieve an unexpected success as in 3 cases he describes. The various stages of the operation as he has slightly modified it are illustrated and described at length. He always orders lavage of the stomach and artificial serum beforehand but no purge, a rectal injection at the most. The operating room should be exceptionally warm and the abdomen covered with a warm cloth. He prefers chloroform and takes every precaution to keep the patient warm with hot cloths and bottles of hot water as soon as the operation is concluded, even before he awakes. No food is given for twenty-four hours. The mouth should be frequently rinsed with a solution of boric acid or natural Vichy water. Antisepsis of the mouth and frequent gargles are an important protection against infection of the parotid glands and septic broncho-pneumonia. He does not hesitate to apply lavage of the stomach whenever the tongue is dry and the patient has acid or bitter regurgitations and temperature. He repeats the lavage several times if necessary and always accustoms the patient to it beforehand. The post-operative diarrhea is combated by lavage of the stomach and large intestine, bismuth and laudanum. There have never been any evidences of the *circulus vitiosus* in his cases.

63. Thoracoplasty for Chronic Purulent Pleurisy.—The principles that have guided Mignon in this intervention were to drain the cavity and to fasten the outer to the inner wall of the pleural abscess. The drainage must be permanent, wide and thorough. It should extend across the entire width of the lowest portion of the cavity. The exact size and shape of the pleural abscess can be determined only by digital exploration. The shape of the thorax has to be altered to correspond. The ribs must be resected to the height required by the size of the pocket, and each rib resected for a distance a little longer than the transverse diameter of the corresponding portion of the abscess. In one case described, four operations were necessary before complete recovery. The abscesses shaped like a pyramid are liable to be most difficult to treat. He never curettes but brushes the walls of the thorax with dry gauze, rinses with hydrogen dioxid, drains with tubes and protects the surrounding skin with zinc oxid salve.

65. Congenital Luxation of the Patella.—Zesas has collected 64 cases of congenital luxation of the patella. Other members of the family were affected in the same way in 6. The age varied from a newborn infant to a man of 71. The luxation was bilateral in 31. It was complete and intermittent in 13; complete and permanent in 29. The tabulated cases show that all of the various methods of treatment devised to meet different conditions have been successful. The surgeon has only to choose for the individual case.

68. Aspiration of Exudates by Fallopian Tubes.—Below is convinced that the tube alters its position at times in order to aspirate exudates in the vicinity. He describes a recent instance in which he purposely elicited this function on the part of the tube. The patient was a woman of middle age, healthy except for rare attacks of renal colic. The pains at one time became unbearable and followed the right ureter, while a long tumor developed in the region of the ovary with indications of painful perimetritis. The vagina and uterus felt hot and dry. The latter behaved as if it contained placental

debris, the os tightly closed. The urine was full of pus cells, the temperature febrile and the chills and pain had reduced the patient so that an operation was impracticable. He deliberately called upon the aspirating function of the tube under these conditions by inserting a glycerin tampon in the cervix after administering a senna purge. In a few hours the cervix was dilated and a large quantity of aqueous or purulent fluid was evacuated through the uterus, with the disappearance of the tumors and complete restoration of the patient, who was soon able to resume her usual occupation as the renal pains subsided under lithion.

74. Caput Obstipum.—The arguments and numerous cuts in this article seem to sustain Volcker's theory that wry-neck is due to a sideward deflection of the fetal head in the uterus. The ear on the lower side of the head is pressed against the shoulder, while the other ear is compressed by the uterine walls. Study of such cases shows that all the lines that unite corresponding points of the two sides of the head converge toward the side of the deformity. All the unpaired points of the head lie in a curved plane whose center of curvature is also on this side. The conditions can be restored approximately to normal if this conception is accepted and appropriate treatment instituted at once, massage and passive reduction, re-enforced by a simple starch cravat.

77. Incarcerated Hernia.—Rothe states that Mikulicz allows taxis only within the first twenty-four hours in case of crural and small inguinal hernia. In case of a large inguinal hernia with comparatively wide opening, cautious taxis may be attempted as late as the second or even the third day. He believes that a timely operation is incomparably less hazardous than taxis done too late. This article reviews 12 cases in which taxis alone was successful, and 97 requiring herniotomy, with 35 additional in which there was gangrene. In one of the latter cases the patient has been in perfect health since the intervention three years ago. The hernia was the size of a child's head and the small intestine was gangrenous at several points. It was resected for a length of 2.15 meters. The details of all the cases are given.

78. Solidity of Cicatrix After Laparotomies.—Pichler has lately re-examined the patients treated with and without Mikulicz's improved drainage. He finds that this drainage—even long continued—does not affect the ultimate cicatrix that forms. The results depend on the presence and the extent of the inflammation. When the drainage was applied merely as a preventive measure, only 30 per cent. of the patients displayed a tendency to hernia later, while only 30 per cent. are exempt out of those tamponed on account of an existing abscess or cystic cavity. The later rupture usually occurred within a year of the operation. The improved drain which Pichler urgently recommends is a square of gauze with a long, strong silk thread passed through the center. The gauze is folded from the center like an umbrella and the point is placed with forceps at the deepest point to be drained. A second and still another of these long pouches are inserted beside the first or nearer the surface. The loose ends of the gauze project from the wound, which is closed above and below. When the tampon is to be removed the folds of the gauze are lifted and loosened in turn while traction is exerted on the deepest portion by pulling on the thread in the center. This loosening is repeated several times before the gauze is actually removed, copiously irrigating the drain between the folds with a tepid aseptic fluid under weak pressure. The infectious secretions with which the drain is impregnated are thus washed out. About 10 to 20 gm. of pure or 5 per cent. carbolyzed glycerin are allowed to trickle between the folds of the tampon, or a 2 per cent. solution of hydrogen dioxid. It was applied merely as a prophylactic measure in 26 out of 62 cases drained in this way. He describes the cases in detail and also the anatomic conditions which render this method of drainage so effectual in the formation of a resistant cicatrix.

81. Early Symptom of Pleuritis with Effusion.—Przewalski noticed in 14 cases of pleuritis with serous effusion and in 5 with a suppurative, that the intercostal spaces were invar-

ably narrower and exhibited considerable resistance on the affected side. This symptom was most manifest in children and in the very early stages of the affection. The ribs seem to draw nearer together over the lesion, analogous to the contraction of the muscles in the course of articular lesions, mentioned in the text-books as the "fixed attitude of the members." He suggests that the reason why this "fixed attitude" of the ribs has not attracted attention hitherto, is that it is not very pronounced, and hence this reflex contracture of the internal intercostal muscles has been overlooked.

82. Resection of the Knee.—Sykow considers the results of surgical intervention on a tuberculous knee quite satisfactory if the limb is left in a normal position, the ends of the bones grown together and the limb not more than 3 or 4 cm. shorter than the other, with the use of it in 3 or 4 months. THE JOURNAL has mentioned the excellent results he obtained in a case of extensive defect in the lower jaw by cutting out a slab from the jaw on one side and slipping it across the breach until it rested in a recess cut out for it in the other side of the jaw. He has applied this same principle of autoplasmic restoration of the defect to the treatment of a tuberculous knee after resection of the diseased joint. He counted in this case as in the first on the regeneration of the so-called intermediate or congenital callus. Its formation is promoted by the introduction of a foreign body between the ends of the bone marrow. The patient was a young man of 18. After resection of the knee a semicircular segment of bone was sawed out of the lower third of the femur. It was inserted between the sawed ends of the femur and tibia and covered with periosteum from the femur. The patient was able to walk on the limb in three months. It is no shorter than its mate, and skiagraphy shows the two bones firmly welded together. The patient walks easily and has recovered his health.

83. Manual Reposition of Luxations Without Narcosis.—Rolloff has been very successful in reducing dislocations of the shoulder by applying slow, gradual extension. The patient lies on the floor on his back. The arm is slowly pulled, gradually increasing the traction but never making it vigorous. At the same time the arm is gradually abducted, until it is in an almost vertical position, parallel to the axis of the body. The traction should not require much effort. By the time the abduction is complete the head is already in its socket and the arm can be slowly lowered, supporting the head in its place from the axilla. When correctly done this maneuver causes no pain, but the extension is experienced as relief by the subject. The attention of the patient is always diverted, and all manipulation of the parts and reflex contracture is avoided. The patients were all robust workmen in his experience and in the one case in which it failed, the reduction was accomplished later under chloroform. About three to thirteen minutes are required for the intervention. It is on the same principle as Stimson's extension by weights, but dispenses with all apparatus. The traction should simulate that of a weight.

84. Differentiation of Pentosuria.—Bial emphasizes the necessity of differentiating between pentosuria and diabetes. In all the cases of the former that have been published, the condition was mistaken for diabetes, and the patients were subjected to annoying restrictions of diet which were absolutely useless. He has modified the orcin test so that the practitioner can test the urine for pentose in a few moments with absolute precision. No boiling is required. He keeps the pentose reagent ready mixed and adds 4 or 5 c.c. to 2 or 3 c.c. of the urine to be examined. He heats the mixture until the first bubbles begin to rise, when green flakes are precipitated or the fluid merely turns green, according to the proportion of pentose. Normal or diabetic urine is not colored green by the reagent. The formula is 1 to 1.5 gm. orcin to 500 gm. fuming hydrochloric acid. About 25 to 30 drops of a 10 per cent. solution of ferric chlorid are then added, and the reagent is ready for use. It is also valuable for the determination of glykuronic acid with slight modification.

85. Granular Degeneration of Red Corpuscles.—Loewenthal remarks that guinea-pigs are so sensitive to external condi-

tions that the granular degeneration of the red corpuscles noted after intraperitoneal injection of tin chlorid, etc., can not be attributed exclusively to the injections. He observed granular degeneration when the animals were kept in the cellar without medication. The reds resumed their normal composition after the animals were placed in the open air, but the granulation was again apparent when they were returned to the cellar. The granular degeneration also appeared out of doors when the weather was cold and damp.

86. Chronic Appendicitis.—Lenzmann has had occasion to observe two more patients who had suffered for two and eight years with severe attacks of pain in the stomach, umbilicus and liver region and constipation. They had been treated for gallstone colic without effect. All the organs seemed to be sound. Palpation revealed a slightly enlarged appendix and it was possible to elicit by pressure the specific pains previously experienced. The pains and constipation were permanently banished by removal of the appendix, which was found in a condition of chronic inflammation. The nerves of the region had probably shared in the inflammation and induced the neuralgia in the stomach, etc., which characterized both cases—evidently true neuralgia of the abdominal sympathetic.

88. Treatment of Gastric Ulcer.—Pariser unconditionally enforces rest in bed as the primary requisite in the treatment of a gastric ulcer. He has derived great benefit from a mixture of chalk and talcum with or without magnesia which he orders in the place of the more expensive bismuth. The mixture is fully as effective as the latter in forming an aseptic crust over the ulcer. He does not use a sound, but has the patient drink 60 gm. in a glass of water on an empty stomach and then lie quietly on his back for three-quarters of an hour.

91. Bone Marrow in Infectious Diseases.—Fraenkel relates in detail the findings in a large number of infectious diseases in which he found the familiar germs in certain parts of the bone marrow during the corresponding disease. They were found most constantly in the red marrow of the vertebrae, less frequently in the ribs. The number of bacteria in the blood did not always parallel the number to be found in the marrow. The pyogenic staphylococci and streptococci were frequently found in the marrow even in the simplest local as well as in general affections, in peritonitis, putrid bronchitis, phlegmona, otitis media and ulcerative pulmonary tuberculosis. The bacteria which make their way into the marrow are the cause of various anatomic changes in it, such as hemorrhages, accumulations of pigment, fibrinous exudates and myelitic and necrotic foci.

94. Cholagogue Effect of Rinsing the Stomach with Nitrate of Silver.—Ehrlich proclaims that after rinsing the stomach according to his technic with .5 liter of a hot 1 per 1000 solution of silver nitrate, on alternate days, the liver commences to increase in size, greenish diarrhetic stools follow for a time, and in case of cholelithiasis, gallstones are liable to be voided. After a few days the diarrhea and tumefaction of the liver subside, and with them all the disturbances. This treatment is indicated in all severe cases of chronic cholangitis or cholelithiasis, especially when the latter is complicated with cholangitis or cholecystitis. The contra-indications are the same as for simple layage of the stomach. The benefit is due partly to the mechanical and thermic effect of the filling and emptying of the stomach in the preliminary rinsing with hot water at 110 to 122 F. The solution of the nitrate is left in the stomach .5 to 2 minutes and is then evacuated. This procedure is repeated once and then the stomach is rinsed with pure hot water until the fluid is clear. The patient can eat immediately without injury. A small amount of the nitrate solution escapes into the duodenum, as evidenced by the inevitable diarrhea. As it passes the orifice of the bile duct the mucosa of the duct is irritated and the lumen narrowed. At the same time the secretion of bile is increased by reflex action, as is shown by the swelling of the liver. As the inflammation in the bile duct subsides and the lumen is clear once more, the accumulated bile escapes under high pressure and sweeps out the gallstones. Experience on patients has shown that the same effect can be

obtained by administering the silver nitrate per os, but the results are not so constant as by the technic recommended, and the metallic taste in the mouth is disagreeable and takes away the appetite. He has applied the rinsing technic on 75 patients, with no untoward effects except slightly increased nervousness. Of the 22 followed to date, 63 per cent. were cured without recurrence; 31.8 per cent. with recurrence, and 4.5 per cent. were not affected. In one case he had an opportunity to inspect the mucosa of the stomach in a patient who had been treated in this way shortly before. It was much congested, but there was no trace of scab formation. The intervention is useful to differentiate gallstones or carcinoma in the gall-bladder. In one case no trace of a tumor could be discovered, until after twelve washings of the stomach the liver was reduced in size to such an extent that a hard tumor in the gall-bladder could be palpated and the operation confirmed the diagnosis of carcinoma. The benefit derived from the measure in cholelithiasis and its failure in case of gastric ulcer is another instance of its value as a differentiating measure. The rinsing requires ten to fifteen minutes at a time, and as severe intoxication would follow if a large amount of the nitrate solution were left in the stomach, he always accustoms his patients to the procedure by preliminary lavage of the stomach until convinced that they will allow the rinsing to be completed. One of his patients voided 3 gallstones the size of a bean and another 33 the size of a hazelnut. Both have been completely cured.

95. **Production of Nerve Stimulants by the Organism.**—Adler suggests that the internal secretion of certain organs must act on other organs by the intermediation of the nervous system. Consequently their secretion is a nerve stimulant.

102. **Bacteriemia.**—Kretz observes that the invasion of the blood by disease germs may assume various clinical aspects. In one form the blood may become infected without an initial local effect, as in malaria, Malta fever and relapsing typhus. In another form there may be typical infection of the blood from a local point of invasion, as in anthrax and typhoid fever. The germs may be carried into the blood by the leucocytes, as in gonorrhoea and probably also in lepra, or swept into the lymph current, as in infection from strepto- and diplo-cocci, or penetrate through some vascular lesion, as in tuberculosis or plague, etc. The invasion of the blood may be secondary to another infection, as in smallpox, measles or scarlet fever. The old terms sepsis and pyemia should be discarded and substituted by local infection with toxemia, metastatic inflammation, etc., reserving the term bacteriemia to express a condition for which we have no name at present.

108. **Tetanus.**—Pfeiffer reports 22 cases of tetanus and has collected 93, which he reviews. He states that the mortality of the cases treated by Behring's antitoxin is 52.7 per cent. while it is only 36.3 per cent. in 88 cases treated by Tizzoni's antitetanus serum. It seems evident, he remarks, that tetanus in Italy runs a milder course than elsewhere. Omitting the 21 cases reported by Italian physicians, the mortality is 46.2 per cent. In 14 of his personal cases in which no specific treatment was instituted, the mortality was 50 per cent.

111. **Artificial Post-Operative Lagophthalmos in Egypt.**—Osborne states that trichiasis is frequent in Egypt, and barbers and old women have a way of treating it identical with that described in the seventh century. They pinch a fold in the lid and clamp it in a slit in a piece of a reed. In the course of two weeks the skin becomes necrotic and drops off. Osborne has had a number of patients come to him in this condition, the operation having removed too large a portion of the lid, thus leaving the eye exposed. He pleads for the organization of "flying squadrons" of ophthalmologists to carry aid to the many sufferers from ocular affections throughout the country. These "flying squadrons" have been extremely successful in Germany and Russia in the campaign against trachoma. They are especially needed in Egypt to save the many sufferers from the practices of the ignorant.

114. **Surgical Aspects of Bilharzia of the Rectum.**—Madden recommends palliative operative measures to relieve the patient of the most distressing symptoms. He removes the

mass in the lower rectum, irrigates with lysol and inserts a morphin and belladonna suppository. The bowels must be kept confined for three days, after which they are assisted to act by a saline aperient or glycerin enema. This intervention must be repeated as the symptoms recur.

Books Received.

Acknowledgment of all books received will be made in this column, and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE PRACTICAL MEDICINE SERIES OF YEAR-BOOKS, COMPRISING TEN VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY. Issued Monthly. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume V. *Obstetrics*, Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Gynecology in the University of Michigan, and Henry F. Lewis, A.B., M.D., Instructor in Obstetrics and Gynecology in Rush Medical College. April, 1902. Cloth. Pp. 226. Price, \$1.25. Chicago: Year-Book Publishers.

DISINFECTATION AND DISINFECTANTS. A Treatise upon the Best Known Disinfectants, Their Use in the Destruction of Disease Germs, with Special Instruction for Their Application in the Commonly Recognized Infectious and Contagious Diseases. By H. M. Bracken, M.D., Professor of Materia Medica and Therapeutics, University of Minnesota. Second Edition. Cloth. Pp. 129. Price, \$1.00. Chicago: Trade Periodical Company, 1901.

A MANUAL OF TOXICOLOGY. A Concise Presentation of the Principal Facts Relating to Poisons, with Detailed Directions for the Treatment of Poisoning. Also a Table of Doses of the Principal and Many New Remedies. By Albert H. Brundage, A.M., M.D., Ph.D., Professor of Toxicology, Physiology and Hygiene, in the Brooklyn College of Pharmacy. Cloth. Pp. 354. Price, \$2.00 net. Brooklyn: Henry Harrison Co. 1901.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, EMBRACING THE ENTIRE RANGE OF SCIENTIFIC AND PRACTICAL MEDICINE AND ALLIED SCIENCE. By Various Writers. A New Edition, Completely Revised and Rewritten. Edited by Albert H. Buck, M.D., New York City. Volume IV. Illustrated by Chromolithographs and 859 Half-tone and Wood Engravings. Cloth. Pp. 872. Price, \$6.00. New York: Wm. Wood & Co. 1902.

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ANNUAL REPORT OF THE MILWAUKEE COUNTY HOSPITAL, FOR THE YEAR ENDED DEC. 31, 1901. Paper. Pp. 115. Milwaukee: Edw. Keogh Press. 1902.

THE MEDICAL TREATMENT OF GALLSTONES. By J. H. Keay, M.A., M.D. Cloth. Pp. 126. Price, \$1.25. Philadelphia: P. Blakiston's Son & Co. 1902.

THE PENNSYLVANIA SOCIETY FOR THE PREVENTION OF TUBERCULOSIS. Report for the Year Ending March 1, 1902. Paper.

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The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., April 17 to 23, 1902, inclusive:

Raoul A. Amador, contract surgeon, now at Chattanooga, Tenn., is relieved from further duty in the Department of Cuba and assigned to duty with the 7th Cavalry, at Chickamauga Park, Ga.

William C. Gorgas, major and surgeon, U. S. A., previous orders revoked; on the discontinuance of the Department of Cuba he will take station at Havana, Cuba, to continue his investigations into the relationship between yellow fever and the mosquito.

John D. Hall, lieutenant-col. and deputy surgeon-general, member of a retiring board at San Francisco, Cal.

Henry F. Hoyt, major and surgeon, Vols., now at San Francisco, Cal., is relieved from duty in the Division of the Philippines and will report for temporary duty at Fort Douglas, Utah.

Jefferson R. Kean, major and surgeon, U. S. A., leave of absence for three months granted, to take effect on his return from Cuba.

Preston S. Kellogg, contract surgeon, from Fort Missoula, Mont., to accompany troops to Alaska.

Henry S. Kilbourne, major and surgeon, U. S. A., member of a retiring board at San Francisco, Cal.

Clarence J. Manley, lieutenant, asst.-surgeon, U. S. A., leave of absence for one month granted.

John N. Merrick, contract surgeon, now at Columbus, Ohio, is relieved from further duty in the Division of the Philippines and assigned to duty at Fort Missoula, Mont.

Joseph Pettyjohn, contract surgeon, now at San Francisco, Cal., is relieved from further duty in the Division of the Philippines and will proceed to Vancouver Barracks, Wash., reporting for duty in Alaska.

Henry D. Snyder, captain and asst.-surgeon, U. S. A., member of a board at Fort Columbus, N. Y., vice Major William H. Corbuser, surgeon, U. S. A., for the examination of candidates for admission to the U. S. Military Academy, West Point, N. Y.; also, detailed to represent the Medical Department of the Army at the American Congress of Tuberculosis, to be held in New York City, May 14 to 16, 1902.

Arthur C. Stokes, contract surgeon, former orders directing him to proceed from Omaha, Neb., to San Francisco, Cal., en route to Manila, P. I., revoked.

Halsey L. Wood, contract surgeon, leave of absence for one month and fifteen days granted.

Appointments, Promotions, Retirements, Etc.

of Army Medical Officers, recorded in the Adjutant-General's Office, between March 15 and April 15, 1902:

Regular Army, Retirements.—Col. Charles P. Kimball, assistant surgeon-general, April 7, 1902, for disability incident to the service, Section 1251, Revised Statutes; First Lieutenant Marshall M. Cloud, asst.-surgeon, March 25, 1902, for disability incident to the service, Section 1251, Revised Statutes.

Volunteers, Appointments.—To be asst.-surgeons, with the rank of captain: James E. Mead of Michigan, contract surgeon, Feb. 10, 1902; Herbert M. McConathy of Kentucky, contract surgeon, Feb. 12, 1902; James B. Pascoe of New York, contract surgeon, Feb. 19, 1902; Edward A. Southall of New York, contract surgeon, Feb. 20, 1902; Edward T. Gibson of Minnesota, contract surgeon, Feb. 28, 1902; Joseph L. Sanford of Virginia, contract surgeon, March 1, 1902.

Navy Changes.

Changes in the Medical Corps of the Navy, week ending April 26: Asst.-Surgeon F. M. Mursion, ordered to duty at the Naval Hospital, Norfolk, Va.

P. A. Surgeon D. N. Carpenter, detached from Naval Hospital, Newport, R. I., and ordered to the *Illinois*.

Asst.-Surgeon A. M. Fauntleroy, detached from the *Illinois* and ordered to the Naval Hospital, Newport, R. I.

Asst.-Surgeon R. W. Plummer, detached from the *New Orleans* and ordered home to wait orders.

Pharmacist C. O'Leary, detached from the Torpedo Station, Newport, R. I., and ordered home to wait orders.

Pharmacist W. H. Huntington, detached from the *Constellation* and ordered to the Torpedo Station, Newport, R. I.

The following order was issued from Headquarters, Department of Cuba, April 14, 1902: Surgeon John W. Ross, U. S. N. (retired), will be relieved from further duty in the Sanitary Department of the City of Havana, May 20, 1902, and will accompany the Department Commander to Washington.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the United States Marine-Hospital Service for the seven days ended April 24, 1902:

P. A. Surgeon W. G. Stimpson, to proceed to Mendocino and Napa, Cal., for special temporary duty.

Asst.-Surgeon S. B. Grubbs, relieved from duty in the Hygienic Laboratory and directed to report to Surgeon J. H. White for special temporary duty; then to proceed to Gulf Quarantine Station, relieving Asst.-Surgeon J. T. Burkhalter. Granted leave of absence for 10 days from April 23.

Asst.-Surgeon W. C. Hobby, to proceed to Brunswick Quarantine and assume temporary command of the service during the absence, on leave, of Acting Asst.-Surgeon R. E. L. Burford.

Asst.-Surgeon J. Goldberger, upon being relieved at Reedy Island Quarantine, to proceed to Tampico, Mexico, for duty in the office of U. S. Consul.

Asst.-Surgeon C. W. Vogel, granted leave of absence for 15 days from May 12.

Asst.-Surgeon C. E. D. Lord, detailed to represent the service at the annual session of the State Medical Association of Texas, at Dallas, May 6-9.

Asst.-Surgeon J. T. Burkhalter, upon being relieved by Asst.-Surgeon S. B. Grubbs, to report to him for duty and assignment to quarters.

Asst.-Surgeon J. S. Boggess, relieved from duty at Philadelphia and directed to proceed to Reedy Island Quarantine Station and report to medical officer in command for duty and assignment to quarters, relieving Asst.-Surgeon J. Goldberger.

Acting Asst.-Surgeon F. M. Clarke, granted leave of absence for 20 days from April 14.

Acting Asst.-Surgeon J. T. McCormac, Department letter of March 15, granting 15 days' leave of absence, amended so that said leave shall be for 6 days from March 30.

Acting Asst.-Surgeon R. T. Walker, granted leave of absence for 18 days from May 1.

Junior Pharmacist Carl Stier, to proceed to Memphis, Tenn., and report to medical officer in command for temporary duty and assignment to quarters.

APPOINTMENT.

Carl Stier, of Alabama, appointed junior pharmacist April 23, 1902.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended April 26, 1902:

SMALLPOX—UNITED STATES.

California: Los Angeles, April 5-12, 4 cases; San Francisco, April 6-13, 15 cases.

Colorado: Denver, April 5-12, 9 cases.

District of Columbia: Washington, April 12-19, 1 case.

Florida: Jacksonville, April 12-19, 9 cases.

Illinois: Belleville, April 12-19, 1 case; Chicago, April 12-19, 14 cases; Galesburg, April 12-19, 1 case.

Indiana: Evansville, April 12-19, 2 cases; Indianapolis, April 12-19, 22 cases, 1 death.

Kansas: Wichita, April 12-19, 2 cases.

Kentucky: Covington, April 13-20, 10 cases.

Louisiana: Shreveport, April 12-19, 7 cases.

Maine: Portland, April 12-19, 1 death.

Massachusetts: Boston, April 12-19, 9 cases, 4 deaths; Chelsea, April 12-19, 1 case; Malden, April 12-19, 2 cases; Somerville, April 12-19, 1 death.

Michigan: Detroit, April 12-19, 10 cases; Grand Rapids, March 29-April 19, 4 cases; Ludington, April 12-19, 5 cases.

Nebraska: Omaha, April 12-19, 33 cases.

New Jersey: Camden, April 12-19, 1 case; Newark, April 12-19, 29 cases, 4 deaths.

New York: New York, April 12-19, 56 cases, 8 deaths.

Ohio: Cincinnati, April 11-18, 17 cases; Cleveland, April 12-19, 2 cases; Dayton, April 12-19, 1 case; Toledo, April 12-19, 2 cases.

Pennsylvania: Altoona, April 12-19, 4 cases; Columbia, April 14-21, 6 cases; Erie, April 12-19, 8 cases; Johnstown, April 12-19, 2 cases; Philadelphia, April 12-19, 26 cases, 1 death; Pittsburg, April 12-19, 5 cases.

Rhode Island: Providence, April 12-19, 2 deaths.

South Carolina: Greenville, April 5-12, 2 cases.

South Dakota: Sioux Falls, April 12-19, 1 case.

Tennessee: Memphis, April 12-19, 13 cases; Nashville, April 12-19, 1 case.

Vermont: Burlington, April 5-12, 1 case.

Washington: Tacoma, April 6-13, 5 deaths.

West Virginia: Wheeling, April 5-12, 1 case.

Wisconsin: Green Bay, April 13-20, 10 cases; Janesville, April 6-13, 2 cases; Milwaukee, April 12-19, 3 cases.

SMALLPOX—FOREIGN.

Austria: Prague, March 29-April 5, 5 cases, 1 death.

Belgium: Antwerp, March 29-April 5, 9 cases, 3 deaths.

Canada: Winnipeg, April 5-12, 6 cases.

China: Hongkong, March 1-8, 4 cases, 2 deaths.

Colombia: Cartagena, March 29-April 6, 1 death.

France: Marseilles, March 1-31, 2 deaths; Paris, March 29-April 5, 3 deaths.

Great Britain: Birmingham, April 5-12, 1 case; Dundee, March 29-April 5, 4 cases; Glasgow, April 4-11, 18 cases, 2 deaths; Leeds, March 29-April 5, 2 deaths; Liverpool, March 29-April 12, 7 cases; London, March 29-April 5, 376 cases, 54 deaths; Plymouth, April 5-12, 1 case.

India: Bombay, March 18-25, 8 deaths; Calcutta, March 15-22, 11 deaths; Karachi, March 16-23, 13 cases, 4 deaths.

Italy: Naples, March 22-April 5, 20 cases; Palermo, March 29-April 5, 6 cases, 2 deaths.

Mexico: Mexico, March 31-April 6, 1 case, 1 death; Vera Cruz, March 29-April 12, 4 cases, 3 deaths.

Russia: Moscow, March 22-29, 21 cases, 3 deaths; Odessa, March 29-April 5, 5 cases, 1 death; St. Petersburg, March 29-April 5, 8 cases, 2 deaths.

Turkey: Smyrna, March 2-30, 1 death.

YELLOW FEVER.

Dutch Guiana: Paramaribo, to March 1, 31 cases, 21 deaths.

French Guiana: Cayenne, to March 27, 1 case, 1 death; Mana, to March 27, 1 case, 1 death; St. Laurent, to March 27, 32 cases, 21 deaths.

Mexico: Vera Cruz, March 29-April 12, 6 cases, 5 deaths.

PLAGUE.

India: Bombay, March 18-25, 751 deaths; Calcutta, March 15-22, 420 deaths; Karachi, March 16-22, 90 cases, 79 deaths.

CHOLERA.

China: Hongkong, March 1-8, 1 case, 1 death.

India: Bombay, March 18-25, 9 deaths; Calcutta, March 15-22, 86 deaths.

Straits Settlements: Singapore, March 1-8, 2 deaths.